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July, 1951

EDISON ELECTRIC INSTITUTE BULLETIN

19th Annual Convention Issue

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

ELECTRICAL RESEARCH STATISTICS
THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

April, 1950-1951

SOURCE AND DISPOSAL OF ENERGY—MONTH OF APRIL

	1951	1950	%
GENERATION* (Net)			
By Fuel Burning Plants	20,282,877,000	17,140,354,000	+18.3
By Water Power Plants	9,010,214,000	8,296,629,000	+ 8.6
Total Generation	**29,293,091,000**	**25,436,983,000**	**+15.2**
Add—Net Imports Over International Boundaries	156,248,000	137,953,000	+13.3
Less—Company Use	148,552,000	117,100,000	+26.9
Less—Energy Used by Producer	513,907,000	511,642,000	+ 0.4
Net Energy for Distribution	**28,786,880,000**	**24,946,194,000**	**+15.4**
Losses and Unaccounted for	2,846,570,000	2,549,287,000	+11.7
Sales to Ultimate Customers	**25,940,310,000**	**22,396,907,000**	**+15.8**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of April 30th			
Residential or Domestic	38,041,140	36,167,645	+ 5.2
Rural (Distinct Rural Rates)	1,612,064	1,566,874	+ 2.9
Commercial or Industrial:			
Small Light and Power	5,442,260	5,367,834	+ 1.4
Large Light and Power	247,232	226,111	+ 9.3
Other Customers	158,336	150,475	+ 5.2
Total Ultimate Customers	**45,501,032**	**43,478,939**	**+ 4.7**
KILOWATTHOUR SALES—During Month of April			
Residential or Domestic	6,339,263,000	5,521,498,000	+14.8
Rural (Distinct Rural Rates)	723,997,000	604,857,000	+19.7
Commercial or Industrial:			
Small Light and Power	4,555,669,000	3,985,776,000	+14.3
Large Light and Power	12,867,655,000	10,930,026,000	+17.7
Street and Highway Lighting	253,523,000	221,113,000	+14.7
Other Public Authorities	656,204,000	581,437,000	+12.9
Railways and Railroads:			
Street and Interurban Railways	287,168,000	287,823,000	− 0.2
Electrified Steam Railroads	210,109,000	208,945,000	+ 0.6
Interdepartmental	46,722,000	55,432,000	−15.7
Total to Ultimate Customers	**25,940,310,000**	**22,396,907,000**	**+15.8**
Revenue from Ultimate Customers	**$456,778,900**	**$410,075,600**	**+11.4**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For 12 months ended April 30th			
Kilowatthours per Customer	1,893	1,740	+ 8.8
Average Annual Bill	$53.95	$50.81	+ 6.2
Revenue per Kilowatthour	2.85¢	2.92¢	− 2.4

* By Courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 19 JULY, 1951 No. 7

Industry Confidence and Determination Sparked at 19th Annual EEI Convention

First Denver Meeting Given Real Western Hospitality by Public Service of Colorado; 1500 Enjoy Hard-Hitting Addresses, Stirring Scenery

DESPITE the complexities and problems bearing on the electric industry as the result of mobilization, an air of confidence was strongly evident at the Institute's 19th Annual Convention in Denver, Colo., June 4-7. Confidence pervaded the positive assertions that the electric industry would not be found wanting in a time of national peril; determination and renewed faith in the industry's ability to withstand government invasion of the power field was expressed; and realistic evaluation of the years ahead disclosed firm ground for optimism about the industry's future prospects.

Atmosphere of Unity and Progress

Some 1500 delegates and guests attended the meeting, the first EEI Annual Convention to be held in the Mile-High City. There can be no doubt that the Denver setting and the unstinted Western hospitality shown by the host, Public Service Company of Colorado, contributed greatly to the general atmosphere of industry unity and continuing progress. Making the delegates doubly welcome, Governor Dan Thornton of Colorado and Mayor Quigg Newton of Denver officially launched the business of the Convention in their greetings on Tuesday, June 5, before the first of the four general sessions.

Outlining clearly both the problems to be met and the expectations to be fulfilled in carrying forward the industry's record of progress, thirteen of the nation's leading business and professional men discussed for the delegates a variety of important topics, including financing, government vs. private enterprise, the defense power program, materials and manpower, farm electrification, and accident prevention. (Convention addresses appear in this issue of the BULLETIN.)

The chairman of the Convention Program Committee, George M. Gadsby, president and general manager of the Utah Power and Light Co., Salt Lake City, Utah, was elected president of the Institute at the annual meeting, succeeding Louis V. Sutton, president of the Carolina Power and Light Co., Raleigh, N. C.

Holding office as Institute vice president, following his election at the Convention, is Bayard L. England, president of the Atlantic City Electric Co., Atlantic City, N. J. In elections to the Institute's Board of Directors, fifteen electric company executives were chosen to serve three-year terms.

Harold S. Sutton, treasurer of Consolidated Edison Company of New York, Inc., was elected treasurer of the Institute, taking over the post vacated by K. B. Crumb, treasurer of American Gas and Electric Service Corp., who retired from his EEI position after serving for five years.

OFFICERS OF EEI
1951—1952

G. M. GADSBY, *President*
Utah Power and Light Company
Salt Lake City, Utah

B. L. ENGLAND, *Vice President*
Atlantic City Electric Company
Atlantic City, New Jersey

H. S. BENNION, *Vice President and Managing Director*
420 Lexington Avenue
New York 17, New York

H. S. SUTTON, *Treasurer*
Consolidated Edison Company of New York, Incorporated

MAE B. WOODS, *Secretary*
420 Lexington Avenue
New York 17, New York

Award Presentations

A feature of the Convention was the unusual range of recognition given to individuals and organizations for contributions beneficial to the electric industry and the public it serves. The Charles A. Coffin Award for 1950 figured in the first presentation ceremony, on Tuesday night, when Georgia Power Co. was accorded this signal honor for community development activities. (Full details on the presentation appear on page 206 of this issue of the BULLETIN.)

On Wednesday morning, Edmund W. Oesterreich, general superintendent of distribution, Duquesne Light Co., Pittsburgh, Pa., received unprecedented honors for his development of the pole top method of artificial respiration—a rescue technique which, since its inception in 1931, has already saved over one hundred lives.

The Claude L. Matthews Valor Award and the Reddy Kilowatt Annual Report Award were presented on Wednesday morning in ceremonies con-

GEORGE M. GADSBY

Newly Elected President of the Edison Electric Institute

ducted by George E. Whitwell, chairman of the EEI Prize Awards Committee.

Employees of three companies were declared winners of the Valor Award. Henry Schwend, a traveling operator for Union Electric Co. of Missouri, St. Louis, Mo., was cited for single-handedly extinguishing a severe oil fire in an important distribution substation; and the 15-man plant crew of the South Amboy, N. J., station of the Jersey Central Power and Light Co., Asbury Park, N. J., was honored for bravery and devotion to duty during and after the disastrous South Amboy munitions explosion of May 19, 1950. One hundred and twenty Utah Power and Light Co. employees were cited as a group for heroism displayed in dangerous mountain terrain as they maintained vital transmission lines during a week of heavy frost, snow, and dense fog late last December.

The Reddy Kilowatt Award went to Wisconsin Power and Light Co., Madison, Wis., for the best annual report of 1950. Receiving honorable mention certificates were Kansas Power and Light Co., Topeka, Kans.; New York State Electric and Gas Corp., Binghamton, N. Y.; and Pennsylvania Power and Light Co., Allentown, Pa. Special mention was accorded to The Empire District Electric Co., Joplin, Mo., and to Illinois Power Co., Decatur, Ill.

Social and Scenic Sidelights

In addition to the four general sessions, taking place on Tuesday morning and afternoon, and Wednesday and Thursday mornings, delegates were invited to enjoy a number of social and scenic sidelights.

On Monday evening, the electric companies of the Rocky Mountain Electrical League were hosts at a cocktail party and dance, the first Convention event. Tuesday noon, it was "ladies only" at a luncheon and entertainment given by the Crosley Division of Avco Manufacturing Corp.

Fred Waring and his Pennsylvanians were on hand Tuesday night, through the courtesy of the General Electric Co., to entertain the delegates and guests, following the Institute's buffet supper.

With no session scheduled for Wednesday afternoon, an interlude was provided for the Convention-goers to tour Denver, some of the surrounding mountains, and other points of interest. In the evening, the justly renowned performers of the Koshare Indian dances staged a show especially for those at the Institute meeting.

In thanking the many individuals and organizations contributing so much in so many ways to the Convention's success, President Sutton especially noted the fine work of the Program Committee, composed of Chairman Gadsby; Charles P. Crane, president of Consolidated Gas Electric Light and Power Co. of Baltimore; and J. E. Loiseau, president of Public Service Co. of Colorado.

Mr. Loiseau was also general chairman of the extensive local committee

NEW PRESIDENT OF THE INSTITUTE

GEORGE M. GADSBY, who succeeds Louis V. Sutton as president of Edison Electric Institute, brings to his new post a background of experience in the public utility field dating from 1909.

As president and general manager of Utah Power and Light Co., Mr. Gadsby is well-known throughout the nation both in the electric industry and in other business fields. The western utility, which he has headed for the past 22 years, has developed during that time from a relatively small and limited concern into a forward-looking public service company supplying electric power to a rich, increasingly diversified region whose economic possibilities only now are beginning to be realized.

Mr. Gadsby was born May 4, 1886, in Collinwood, Ohio. His father was then secretary of the railroad YMCA, and afterward became a Congregational minister. Mr. Gadsby attended Marietta (Ohio) College, graduating in 1906 magna cum laude, Phi Beta Kappa. He received the degree of Master of Arts from Marietta in 1907, and then attended Massachusetts Institute of Technology for two years, receiving the degree of Bachelor of Science in 1909. In 1928 he was awarded an honorary degree of Doctor of Engineering by the University of Pittsburgh and in 1941 an LL.D. from Marietta College.

Going immediately into public utility work upon his graduation from MIT, he joined the Warren Water Co., a subsidiary of the American Water Works and Electric Co., at Warren, Pa. From there he went with American Water Works to Pittsburgh, Little Rock, Arkansas, and later to New York. In 1918 he went to work for the West Penn Power Co. in Pittsburgh and nine years later was made president of that concern.

Mr. Gadsby joined the Electric Bond and Share Co. in 1929 and went to Utah as chief executive of Utah Power and Light Co. While he planned to remain in Utah for but a short time, subsequent developments and a real love for the intermountain area and its people caused him to give up any thought of leaving. He directed UP&L's recapitalization and reorganization activities in 1944, and at present he is handling the $68 million expansion program which, upon completion in 1953, will increase his company's electric generating capacity by 85 per cent.

While in Pennsylvania, Mr. Gadsby was president of the Pennsylvania Electric Association, and has since been president of the Northwest Electric Light and Power Association, and a director of the National Association of Manufacturers and the Edison Electric Institute. He is at present a director of the National Association of Electric Companies, an active participant in the Electric Companies Advertising Program and the Public Information Program, and a member of the Electric Utility Defense Advisory Council in the Department of the Interior. He served two years as first national chairman of NAM's Committee on Conservation of Renewable Natural Resources, and remains a member of the committee at present.

Long active in community civic and cultural affairs, Mr. Gadsby is a member of the board of the Utah State Institute of Fine Arts and is a past president of Salt Lake Rotary Club and Community Chest of Salt Lake County, of which he is an honorary life member. He is a member of the Salt Lake Country Club, Alta Club, and New York University Club.

New Members of the EEI Board of Directors

ERNEST R. ACKER
President, Central Hudson Gas and Electric Corp.

M. W. ARTHUR
Vice President, Consumers Power Co.

HARLLEE BRANCH, JR.
President, Georgia Power Co.

H. J. CADWELL
President, Western Massachusetts Electric Co.

STUART COOPER
President, Delaware Power and Light Co.

D. C. LUCE
Vice President, Public Service Electric and Gas Co.

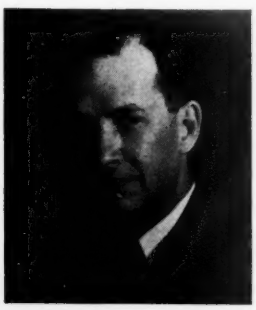
M. S. LUTHRINGER
President, Central Illinois Public Service Co.

W. W. LYNCH
President and Gen. Mgr., Texas Power and Light Co.

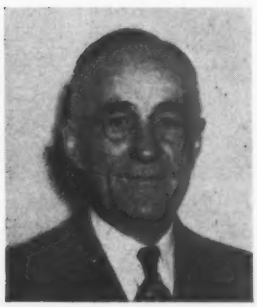
W. C. MULLENDORE
President, Southern California Edison Co.

C. E. OAKES
President, Pennsylvania Power and Light Co.

T. E. ROACH
President, Idaho Power Co.



H. B. SARGENT
President, Central Arizona Light and Power Co.



L. M. SMITH
Vice President and Gen. Mgr., Alabama Power Co.

MCGREGOR SMITH
President, Florida Power and Light Co.

D. E. WASHBURN
Asst. Vice President, Boston Edison Co.

B. L. ENGLAND
Newly Elected Vice President of the Edison Electric Institute

BAYARD L. ENGLAND, president of the Atlantic City Electric Co., Atlantic City, N. J., has been elected vice president of the Edison Electric Institute. Mr. England succeeds Henry B. Bryans, president of the Philadelphia Electric Co., Philadelphia, Pa., in the vice presidential post and will hold office for one year.

Born in Newark, N. J., Mr. England attended Atlantic City schools and was graduated from Temple University. He began his career with the Atlantic City Electric Co. in the engineering department in 1924. Gaining wide experience through varied service within the company, he became division manager in 1929, commercial manager in 1935, and served as vice president and assistant general manager from 1941 to 1946. Since 1946, he has been general manager and a member of the board of directors. He was elected president in 1948.

Active in civic and charitable organizations in southern New Jersey, Mr. England is also president of the New Jersey Utilities Association, and deputy director of State Civilian Defense for New Jersey. He is a director of the New Jersey State Chamber of Commerce and of the Pennsylvania-Reading Seashore Lines.

K. B. CRUMB
Retiring Treasurer of the Edison Electric Institute

MR. CRUMB contributed wide experience in fiscal matters and careful personal attention to his duties as treasurer of the Edison Electric Institute during the past five years. On Mr. Crumb's retirement last month from the job of financial officer for the Institute, President Sutton expressed the gratitude of the members of the Institute for "the willing and helpful service rendered in capably handling the financial affairs of the Institute."

Born in Belvidere, Ill., Mr. Crumb attended secondary schools in Rockford, Ill., and, after attending the University of Wisconsin, joined the American Gas and Electric Co., with which he has been associated since 1909.

Following positions with subsidiary companies in Rockford, Ill., and Newark, Ohio, he joined the New York office of American Gas and Electric in 1911 as a traveling auditor. In 1921 he was promoted to general auditor and in 1943 became assistant treasurer of the service corporation.

Since 1944, when Mr. Crumb was appointed treasurer and assistant secretary, he has directed all accounting and office procedure operations for the entire American Gas and Electric system.

H. S. SUTTON
Newly Elected Treasurer of the Edison Electric Institute

HAROLD S. SUTTON, treasurer of the Consolidated Edison Co. of New York, Inc., has been elected treasurer of the Edison Electric Institute, succeeding K. B. Crumb, treasurer of the American Gas and Electric Service Corp.

Born in Massena, N. Y., Mr. Sutton was educated in the Massena schools and at St. Lawrence University. He enlisted in the regular Army following his graduation from college and was commissioned a lieutenant in 1918.

After the Armistice, he joined Northern New York Trust Co. in Watertown, N.Y., as assistant manager of the Bond Department. In 1921 he became manager of the Bond Department of the Peoples Trust Co. of Malone, N. Y. In 1923 Mr. Sutton came to New York as assistant secretary of F. L. Carlisle and Co., Inc., investment bankers.

In 1935 Mr. Sutton joined Consolidated Gas Co. as executive assistant to the chairman of the board. When Ralph H. Tapscott became chief executive officer of the Consolidated Edison System Companies in 1942, Mr. Sutton was appointed his executive assistant. He has been treasurer of the company since 1946.

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organization, staffed chiefly by Public Service personnel. Mr. Sutton, in his tribute to these Denverites, cited their "wholehearted cooperation" as being "the prime mover in making the Convention go." Vice Chairmen Gaylord B. Buck and Kenneth J. Haines were the operating heads of the committee set-up, composed of fifteen principal groups, their chairmen, and some 115 committeemen. In addition, over 100 others cooperated in various ways.

An indication of the thoroughness and willingness which the people of Public Service brought to the role of host—and evidence as well of the scope of Convention detail—is given by the major functions of the committees: arrangements, area coordination, registration, information, publicity, reservations, automobile and bus transportation, company activities, hospitality, mountain trips, ladies' luncheon, Tuesday night buffet supper, Tuesday night entertainment, and Wednesday night entertainment. In all these departments, committee assistance and cooperation were invaluable.

For their important share in providing pleasure and enjoyment for the Convention delegates and guests, the Crosley Division of Avco Manufacturing Corp., the General Electric Co., the Rocky Mountain Electrical League, and other organizations and individuals received sincere expressions of gratitude.

Much-merited appreciation was also accorded to the staff members of *Electrical World* for an excellent job of publishing the Denver editions of the *Unconventional Daily*, a journal designed exclusively for the Institute's annual meeting.

Georgia Power Company Wins Charles A. Coffin Award

FOR giving "important assistance and motivation to community betterment" in its service area, Georgia Power Co., Atlanta, Ga., was awarded the electric industry's most highly regarded mark of distinction, the

Charles A. Coffin Medal, at the Edison Electric Institute's 19th Annual Convention, in ceremonies conducted by Louis V. Sutton, Institute president. Ralph J. Cordiner, president of the General Electric Co., made the presentation to Charles A. Collier, vice president in charge of sales of Georgia Power Co.

The Georgia Power Co., whose service area constitutes 50,000 of Georgia's 59,000 square miles, was selected from a total of 36 operating electric companies, representing every section of the nation, whose achievements in 1950 were, in the opinion of a special nominating panel, worthy of consideration for the Award.

Final determination of the winning company was made by a committee of judges consisting of Dr. James R. Killian, president of Massachusetts Institute of Technology, C. W. Kellogg, past president of the Edison Electric Institute, and Mr. Sutton.

In summarizing Georgia Power's award-winning achievements, the judges noted that the company, which has as its customers 87 per cent of Georgia's population, recognized "an urgent need for economic and social improvement" in its territory, and evolved, through its community development division, successful improvement programs which were conducted in cooperation with various groups of local citizens and state agencies.

By encouraging "community self-help and rehabilitation" through such activities as its Better Home Towns Program, Georgia Power has been instrumental in achieving "a reversal of the previous migration trend of promising young people from the state" and in bringing about "the predominance of clean, attractive towns." Improved agricultural methods were given new incentive, and a basic assumption was proven—that "new business and industries would be attracted to better towns."

By-products of Georgia Power's community development work, which were not overlooked, are the gains resulting for the company itself. Not only were material results recorded, but such valuable intangibles as improved company welfare, heightened prestige, and increased good will were attained

In their citation the judges commended Georgia Power "for its great contributions to the progress and well-being of the State of Georgia," and "for the achievement, while furthering the community cause, of unusual public appreciation and understanding of the company, and of the American economic system which fosters such a business enterprise."

Most coveted of the electric industry's recognitions of merit, the Charles A. Coffin Award was established 29 years ago by the Charles A. Coffin Foundation, as a tribute to the memory of the late Charles A. Coffin, founder and first president of the General Electric Co., and to honor each year "a distinguished contribution to the advancement of electric light and power service for the convenience of the public and the benefit of the industry."

Consisting of a gold medal for the winning company, and $1,000 for the employees' benefit fund, the Coffin Award has acquired national prominence in the public mind as well as in the industry for its significance as an acclamation for conscientious service and progressive development.

Charles A. Collier (center), vice president in charge of sales, Georgia Power Co., accepts the 1950 Charles A. Coffin Award from Ralph J. Cordiner (left), president of General Electric Co., donor of the award. Louis V. Sutton (right), president of the Institute, conducted the presentation ceremonies held at the 19th Annual EEI Convention.

The President's Address

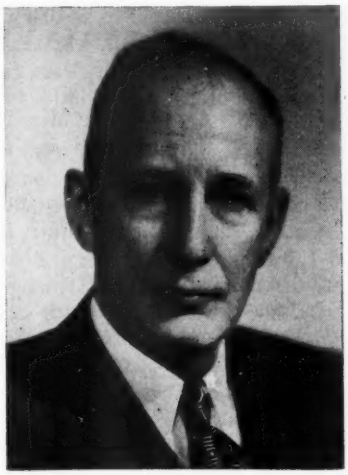
By Louis V. Sutton

President, Carolina Power & Light Company, and President, Edison Electric Institute

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 5, 1951

IN the name of the directors, officers, and staff of the Edison Electric Institute, I welcome you to what I earnestly hope will be a very pleasant and profitable convention, held in what I know is one of the most delightful spots in this great land of ours.

The 12 months that have passed since our last convention have been most eventful. They brought the outbreak of the sanguinary and seemingly inconclusive fighting in Korea. They have seen our nation embark upon the largest peacetime effort in the long history of our republic. A heavy demand has been thrust upon the productive capacity of this nation and because this productive capacity depends upon a virtually unlimited supply of dependable electric power, an additional load has already been laid upon the shoulders of the electric power industry. Still further burdens will be placed upon us as the defense program expands and intensifies.



LOUIS V. SUTTON

Measure of Added Load

We have a close measure of the added load as this has been so far disclosed. The April, 1951, Semiannual Survey of our Electric Power Survey Committee, of which Walker Cisler of The Detroit Edison Company is chairman, when compared with the April, 1950, survey of that committee provides this measure. Events since Korea increased the demand for electricity in December, 1950, by three million kilowatts and have increased the estimated demand for 1951 by six and one-half million kilowatts, for 1952 by nine million kilowatts, and for 1953 by 12 million kilowatts. Expressed in percentages, these figures for the four years, 1950 to 1953, inclusive, amount to increases of 5 per cent, 11 per cent, 12½ per cent, and 17 per cent, respectively.

Our committee reports that this coming December and in December, 1952, we may expect to have about the same percentage of reserve capacity that we had in December, 1950, which was 10 per cent. This is a good working margin, as indicated by past experience. It is about half of what we expected to have before Korea, but on account of the time required to build new generating capacity, the construction program could not be increased in 1950 and 1951, and not until 1953 and 1954 could we expect to gain much increased capability.

Two areas are well below the general average of reserves, but their position will not be essentially different from what they occupied in 1950. The estimated reserve margin for December, 1953, would drop only slightly from the estimate of a year before, or from 18½ per cent to 16 per cent.

We do not yet know what new, large defense loads may have to be met, nor in what particular areas they may fall, nor do we yet know how seriously our expansion plans may be hampered by delays in obtaining materials and equipment, but we do know that any material shortages that may hold back our own expansion program will likewise retard the building plans of most of our customers and prospective customers. When the increased power demand falls on our system, we know from previous experience that we will have available increased capability with which to fill it.

I want to point out and emphasize that these estimates which we have cited are not one man's guess. They are the results of the investigations and studies of hundreds of expert load forecasters reporting on all of the larger and most of the smaller power systems of the nation. The estimates cover 95 per cent of the industry. Of course, changing conditions can affect the validity of the estimates, but as of April, 1951, they represent the most dependable information available.

I mentioned that the report shows an expected reserve margin for December, 1953, of 16 per cent, and I wish to comment on this figure for a moment. We have been criticized in some governmental quarters for planning too ambitiously, for not being willing to curtail our service as other industries may have to curtail theirs in the interest of national defense.

Conservative Planning

The figures revealed by this report show that we are following conservative, not extravagant, plans. The dependence of all segments of American life upon electric power is such that we must exert our best endeavors to supply the increased power demands, and we have done and will continue to do that.

Decisions of the Federal government in the interest of national defense have imposed the increased demands upon the power industry. Nevertheless, we realize that the needs for scarce materials and for manpower throughout the nation impose upon us a grave responsibility to use our best engineering talents, resources, and business judgment to hold down our construction requirements to the bare limits of safe operating margins. Although we might be criticized for planning to increase our reserve margin between now and 1953, prudence requires that we make reasonable allowances for additional large, unforeseeable power demands for national defense.

Still other elements of the government have been clamoring that we have been moving so conservatively in increasing generating capacity that power

shortages will develop all over the nation. Neither the comprehensive and authoritative Ninth Semiannual Power Survey nor this speech of mine will stop persons, particularly those with axes to grind, from continuing to glimpse or smell a power shortage in the offing. But our careful and complete surveys tell us where we are and how fast we should move. They put us in a position to give authoritative advice on power supply to those who are thoughtful enough to turn to informed and responsible sources for information.

Wilson Comments

Charles E. Wilson, now head of the Office of Defense Mobilization, went before the National Press Club in Washington and announced: "There would be no power shortage unless the government insisted on locating defense plants in the wrong communities or withheld scheduled equipment from the power companies."

All that I have said about these indicated reserve margins as compiled by our Electric Power Survey Committee, from its comprehensive survey of estimates of the power systems of the entire country, is predicated upon the delivery, on schedule, of the equipment and materials on order. If these manufacturers cannot obtain materials as needed to enable them to meet specified delivery dates, then the margin of genrating reserves must narrow down and in some areas, at least, power shortages may be expected.

Controlled Materials Plan

The new Controlled Materials Plan recently promulgated by the National Production Authority to go into effect for the third quarter of this year, beginning July 1, is so drawn that steel and copper for the manufacture of power generating equipment will be cut 30 per cent, the same cut that has been made in the supply of materials for all other types of electrical equipment and appliances. If this order stands as now drawn it will gravely jeopardize the adequacy of the nation's power supply next year and subsequently.

So small a percentage of the industry's total requirements for steel and copper goes into the equipment and building of the generating stations themselves that it is to be hoped the control agencies of the government will see their way clear to modify this order sufficiently to permit the manufacture of generating station equipment to proceed according to the conservative schedules of the industry's power experts. Foresight as to the national consequences of power shortages from this cause compels us to urge a prompt reconsideration by DPA and NPA of this particular restriction on the use of steel and copper.

Later in our program we will hear more concerning power supply, large defense loads, equipment deliveries, and material limitations from C. B. McManus, DEPA administrator. I will leave further discussion of this subject in his very capable hands.

In this address I will not attempt to give you a comprehensive report on all of the year's developments in the industry, or in the affairs of the Institute; instead I want to use the time available to me to touch upon what I consider a few vital questions with which the business-managed power companies are having to contend. The topics I wish to discuss are financing the expansion program, the taxation picture, the rate outlook, rural electrification, stemming the pressure of government competition, and the spirit and habit of good service.

Expansion Program

Nearly four years ago, the business-managed electric light and power companies of the nation, then constituting a 12 billion dollar industry, announced through the then president of the Edison Electric Institute, Charles E. Oakes, a five billion dollar expansion program. This was widely recognized, particularly in financial circles, as a huge undertaking for any one industry and a notable example of the American free enterprise system in operation. That expansion program soon became six, then seven, then nine, then 12, and now 15 billion dollars.

Part of this change in size from five to 15 billion is due to the passing of time, because this is a growth industry in a growing country and each year adds increased construction requirements, but this program represents much more than normal growth. It has been abnormal growth. It should be recognized, too, that part of the dollar increase in the program represents inflationary factors.

I previously remarked that events in the past 12 months had caused the nation's electric power systems to raise their load estimates for December, 1953, by 12 million kilowatts, or 17 per cent. All this estimated load increase, approximately ten million kilowatts, would fall on the systems of the electric utility companies.

For certain regions and for certain companies, this required plant expansion is far above the national average. The enlargement comes about at a time when extraordinarily high taxation is draining off capital accumulation that normally would be available for investment in business expansion. It seems obvious that the power industry, in general, but more particularly the companies in a number of the more rapidly growing areas, face a big financial problem. Ours is a regulated industry; the companies are held rather closely to an established rate of return and to a desired ratio between debt and equity capital. New equity capital must be raised by financing.

Accelerated Amortization

Acting upon their previous wartime experience with problems of financing rapid wartime expansion, the Congress undertook to facilitate the financing of such rapid expansion by providing a tax allowance for accelerated amortization. For many companies such accelerated amortization becomes extremely important if they are to be able to finance the required plant expansion.

Taxes now take 23 cents of every dollar of income of the electric utility companies. Last year corporate income taxes were increased from 38 to 47 per cent. The new tax bill before Congress would increase this percentage still further. The effect of taxes on our industry is so vital at this time that if you have not already done so, I suggest that you read the excellent statement made by Charles E. Oakes, present chairman of the Special Tax Committee of EEI, before the House Ways and Means Committee on March 13.

Testimony Before Federal Committee

I recommend also that you read carefully the statement on the tax bill presented by John H. Hessey, representing the National Association of Railroad and Utility Commissioners, because the viewpoint expressed in his testimony can be extremely important to utility management. I also urge, if you have not done so, that you read the presentations concerning the excess profits tax by Harold Quinton and Justin R. Whiting in hearings before the Senate and House committees on November 22 and December 7, 1950, respectively.

This increase in Federal taxation continues to grow in relative importance, even taking its place ahead of other problems that press upon us so relentlessly. I wish to quote from one statement by Mr. Oakes in his presentation before the House Ways and Means Committee:

"We have made a careful study of the operations of the public bodies owning and operating electric utility businesses, and find that under present conditions full tax equality with the electric utility companies would bring in $88,500,000 of new tax revenue to the Federal government. The amount will be much larger in the years to come, as Public Power has a gigantic construction program. . . .

"The program—in service, under construction, authorized and proposed—now totals 54,470,000 kilowatts of Federal and Federally-financed electric power, and is six and one-half times the amount now in service. I quote you these figures to show you the great scope of the tax-free power business of the future. . . .

Tax Exemption of Public Power

"The exemption from Federal taxes possessed by public bodies engaged in the power business and enjoyed by their customers should be ended by the bill which this committee will prepare:

"1. Because it would bring in badly needed tax revenues from a segment of our people which is not paying its full share of the cost of the Federal government.

"2. Because the time to take the step is now. As Public Power grows in size, it will be increasingly difficult to make the change."

The electric utility companies, and in the last analysis, 80 per cent of the American people who are their customers, are one of the most heavily taxed elements in the nation's entire economy. Further tax increases will gravely threaten their progress. Tax discrimination against one community in favor of another by a Federal government dedicated to equal justice for all is unconscionable.

It, therefore, devolves upon every one of us to be sure that our employees, our stockholders, and our customers continue to be fully informed on these facts so that in the democratic process the unfairness will be corrected and the threat to our sound growth and development be removed. If we do not point out this danger and this unfairness, who is going to do it for us? It is not a one-man job; it is an educational task for every one of us.

The industry has an enviable record of keeping prices down in the face of rising costs. The electricity component of the consumer price index as of December 30, 1950, was only 90.3 per cent of the 1935-39 base, as compared with 178.4 per cent for the total of all items. For residential service, the average revenue per kilowatthour decreased from 3.09 cents in 1947 to 2.88 cents in 1950. This decrease in the face of higher prices generally was due largely to increased use under our promotional rates.

Rate Increases

Since 1947 there have been 231 rate increase actions by 144 companies. Of the 231 requests, 202 were granted, 21 are still pending, and eight were denied or withdrawn. Of the 21 pending cases, 14 were filed in 1950 and seven in 1951. The cumulative total increase since 1947 is between 2 and 2½ per cent of the gross revenue.

During the same period (1947 to date), governmental agencies, which account for only 15 per cent of the kwhr sales, have made 617 increases.

The record makes it clear that increases have been requested only when needed, and that, in general, commissions have realized their obligation to the public and the defense effort to keep the industry in a healthy financial condition. As I previously indicated, the industry is in the largest expansion program on record, and to finance successfully the remainder of this program, it must continue to earn a return sufficient to attract the necessary capital.

Building Rural Lines

The job of building power lines to reach occupied farms and rural non-farm establishments has virtually caught up with the present settlement of America. Of course, America is growing and we will always be extending rural lines to serve rural growth, but by the end of this year, electricity will be available to all but about 5 per cent of the occupied farms of America and to all but about 3 per cent of the occupied rural dwellings. Many of the remaining farms are very widely scattered.

The fact that farm lines will reach 95 per cent of the occupied farms does not mean that 95 per cent of the farms of America will be taking service. About 4 per cent of the farms are unoccupied and about 3 per cent of the occupied farms reached by power lines are not yet taking service.

With one big task nearing its end, the big job ahead of us in the rural areas is to make electricity do still more for the farmer. Electricity is tremendously important to our farm customers. It will become very much more so in the years immediately ahead.

It is greatly in our interest as suppliers of electric service to help save the farmer's time, to lift the work load from his shoulders, to increase his production and his profit, to lighten the household tasks of his wife and to brighten his home. It is the way for us to earn a fair return on the expensive facilities we have built and must continue to build and improve in order to give him the kind of service his new farming methods will seriously require.

I ask that you give close attention to the talk Professor Duffee will make on this subject and when you go back home that you put into use the ideas he will present. Rural electrification is one of our big responsibilities and one of our big opportunities to serve America.

Threat of Socialization

I am revealing no secret to this audience when I say that one of the passionate projects of the New Deal and the Fair Deal is the socialization of the power industry. For 18 years there has been no letup in their program. Little has been overlooked in the drafting and enactment of legislation, the appointment of "socially minded" administrators, the development of administrative regulations, and in the management by the government of court proceedings designed to contest the legality and constitutionality of legislative and administrative acts to make certain that the program of the Administration would not be arrested or seriously hindered.

Failure of efforts so far to socialize the industry in the face of huge appropriations, of destructive tax discrimination, and the other maneuvers of a powerful bureaucracy can be credited, in my mind, to two principal factors: first, the inveterate dislike, which is growing, of the American people for socialism or government in business; second, the inherent strength of free enterprise, the youthful vigor and the fundamental soundness of the electric business, and the generally high character and ability of the many company organ-

izations serving the communities throughout the nation. A third factor is now beginning to exert itself with force—inflation. The shrinking value of the American dollar, in no small part attributed to lavish Federal expenditures for dubious benefits, is becoming painfully plain to the American consumer.

Americans Dislike Socialism

The American people do not like socialism. This is attested by the fact that those in government who are trying to socialize the power industry resent very much our calling it by its real name. They try to advance their programs by deception and coercion and by tying their socialized power projects to other proper Federal government undertakings, such as national defense, flood control, navigation and irrigation.

The electric light and power companies do not oppose sound development and utilization of the water resources of the nation in the public interest. They have repeatedly published their policy with respect to this matter. They stand for the conservation, development, and utilization of the water resources of the nation in the public interest. They recognize that stream control directed at flood prevention, water supply, reclamation and navigation may involve functions of the Federal government, and that often, in connection therewith, electric power development is economically feasible and should be made. They urge, however, that government, especially the Federal government, should foster development by private capital, which means taxpaying capital.

This body, assembled at its Annual Convention last year, adopted fifteen principles for sound water resources development. They were basic and in harmony with the American way of life, embodying the principles and spirit of fairness and constructive progress.

We, as power companies, are identified with, and are integral parts of, local initiative, accomplishment, and citizenship. What truly builds up the communities that we serve also soundly builds our business. We are second to none in our interest in healthy community development. We are in a position, as few other industries are, to contribute to and lead in such sound development. We have a great chance for steady long-range service to the cause of local independence and civic strength.

In most respects our industry has done a wonderful job. Our engineering, development, and service rendered have been unsurpassed. We have financed and made available the necessary capital. Our sales promotion has been splendid. We have operated well and efficiently and are rendering a great service at low cost —a cost that has been decreasing over the years when the cost of all other commodities is increasing. We have a great story of accomplishment and service. But do the people know it?

In the face of the acknowledged need for a more aggressive and thorough public relations program, it is surprising to see how little effort we are making.

As to whether or not the government propaganda program is effective, I need only review the progress made by one single agency, the REA. Without spending one cent for direct advertising, REA, through consistent publicity on both the local and national level, has created the widespread impression that it brought electricity to the farm and that it serves most of the farm customers instead of about half of them. The average citizen believes, furthermore, that many of the lines built by investor-owned utilities would not have been constructed had it not been for REA.

Propaganda-Created Misinformation

A considerable proportion of the people believe that the electric utility industry cannot provide the necessary capacity to implement the defense program, and therefore the government should construct generating plants. During the present emergency, as was the case during World War II, the press is being flooded with releases designed to prove the imminence and even existence of a power shortage.

It is widely believed, too, that hydroelectric plants invariably are more practical than steam plants, that steam generating plants somehow are "synthetic" and costly, while hydro stations are the handmaidens of nature and therefore benevolent, in spite of the fact that it should seem obvious that a company compelled to earn a profit would always use the most economical source of power at hand.

These impressions are strongly entrenched, and they have been created without benefit of newspaper advertising. It is my belief that our industry has not given the propaganda methods of public ownership advocates the consideration they deserve, and has not yet found an adequate match for them.

I do not have to tell you that the electric utility industry is a miserly advertiser. During 1950 our industry spent through the five major advertising media a total of $16,000,000. When salaries and other advertising expenses are added, the figure is increased to $25,000,000. According to the February 23 issue of *Printers' Ink,* our industry's advertising program, ECAP, ranked ninety-eighth in a list of 100 leading national advertisers in 1950. The three leading soap companies in this country spent during the same year $52,500,000 in media advertising and $77,000,000 in total advertising expense.

In addition to this Institute, we have in the electric utility industry three major industry associations: The Electric Companies Advertising Program, National Association of Electric Companies, and the Public Information Program. They are all doing good work, but they are not supported by the industry as they should be. The EEI represents 80 to 85 per cent of our industry, with total dues of around $800,000. ECAP has the support of 60 per cent of the industry, with an income of $1,400,000. The NAEC has about two-thirds of the industry, with an income of around $400,000; and PIP, which has only recently been organized by ten companies, now has 70 member companies, with an income of about $300,000. This is a total of slightly less than $3,000,000.

For the individual companies supporting all four, the cost is about one-tenth of 1 per cent of total gross revenues, or about 1 mill out of each dollar. For the industry as a whole, with gross revenues for 1950 of $4,500,000,000 excluding inter-company sales, the cost is two-thirds of a mill per dollar of gross revenue, or around six-one hundredths of 1 per cent. This is a pitifully small amount for our industry, which is fighting the battle of our own existence as well as of our free private enterprise system.

Increase Advertising Budgets

The budgets of these four associations should be increased to at least $4,000,000 a year, with ECAP using half of it. I think you will agree with me that ECAP has been most helpful in bringing about the improvement in public opinion reflected in the survey recently completed. The sentiment in favor of government ownership has declined. Criticism of company profits has diminished. Socialism is an even more unfavorable

(*Continued on page* 244)

Utility Financing

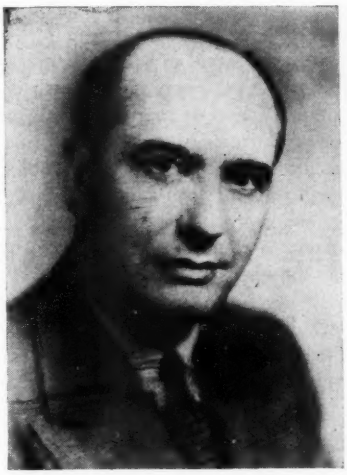
By George D. Woods

Chairman of Board of Directors, The First Boston Corporation

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 5, 1951

IT is just about one year since the outbreak of war in Korea. It is now apparent that that event marked the end of the Post-World-War II period and the commencement of an era which is thus far being termed defense program or defense effort. It is to be hoped that this defense program period will never be renamed the Pre-World-War III period by future recorders of our economic history. However, it must be recognized that either designation would carry the factual implication of a period of increasing government controls in practically all phases of business.

In this period of change and uncertainty, I welcome the opportunity of addressing the leaders of an industry which is of vital importance to a peacetime economy, a defense-effort economy, or a wartime economy.



GEORGE D. WOODS

Necessity of Industry Programs

It is my purpose to comment on certain matters affecting the financing of your electric power and light industry and perhaps to inspire programs for appropriate action on your part and to a degree on the part of your regulatory bodies. I believe that our national defense program, if it is not to ruin us economically, must be accompanied by industry programs, designed not only to complement the national effort to protect against foreign aggression but designed also to protect management, labor, and investments from the perhaps unintentional adverse by-product effects of the over-all national effort.

It seems clear to me that the single most important job before the electric power and light industry is to create the facilities required to serve the estimated future demand for electricity. Stated in a banker's terms rather than in kilowatts or miles of wire, this is a seven billion dollar job in the three years 1951, 1952 and 1953. It is a big job. By comparison, the widely publicized expansion of the steel industry will require two and a half billion dollars in the two years 1951 and 1952.

Despite its size, I have no doubt that your enormous program of expansion can be and will be financed. In truth, the program must be financed and completed, because without the necessary facilities for the production, transmission, and distribution of electricity, the programs of all other industries which contemplate building production facilities for the defense effort would come to naught. They cannot function without electricity. The alternative is government rationing of electricity which will work hardships on residential consumers — non-essential to the defense production program — and add sympathetic listeners to the arguments which are made continually by the proponents of government ownership of the electric power and light business.

Financing Expansion

In the three years 1948, 1949, and 1950, you did a six billion dollar job of expanding, and it was well done. On the basis of this past experience, it may be estimated that 1/3 of the seven billion dollars now needed will be generated internally by your industry, and 2/3, or approximately four billion, 700 million dollars, will come from investors. This 2/3 will be divided about three billion from debt securities, approximately 700 million from preferred stock, and very close to one billion dollars from the sale of common stock.

The sale of the debt securities will present no unusual or particularly difficult problems. Present indications are that the rent for the money will be approximately ½ of 1 per cent higher than was paid in the 1948, 1949, and 1950 period. At these new levels, I expect that you will find important groups of investors more active purchasers of your bonds than they were in the past. Small and medium size insurance companies, fraternal societies, colleges, hospitals, and pension funds, which elected to retain cash or invest in government bonds when the return on your long-term bonds was below 3 per cent, will again be in the market. Private placements or direct placements with small groups of large insurance companies may be less frequent.

This possibility suggests that it would be timely for representatives of this association, in collaboration with representatives of the trade associations for security dealers, to explore with members of the Securities and Exchange Commission the possibility of simplifying and streamlining the requirements for registration under the Securities Act, which is a prerequisite for public offerings of your securities.

Registration Under Securities Act

A procedure whereby debt securities which are rated Baa or better by two of the three nationally recognized security rating agencies could be effectively registered under the Securities Act in, say, 24 hours upon the filing of a one-page registration statement, which would also serve as a prospectus, and upon an agreement that the debt securities so registered would be listed on a national securities exchange, thereby assuring the future availability of complete information respecting the issuing company, would be of immeasurable assistance in the raising of this three billion dollar segment of your requirements. I am advised that, assuming financial statements are audited and up to date, such a procedure could be worked out within the range of the Commission's existing powers.

The preferred stock portion of your

requirements has presented problems for some of you at times during the past three years, and you may expect that it will continue to do so. However, the somewhat higher dividend rates which investors will demand on preferred stock will also open new sources of capital. Perhaps a range of from 4.25 per cent to 5 per cent will be the area of cost in which most of you will find that investors will take your preferred stock.

Value of Sound Capitalization

The temptation to raise disproportionate amounts of the new capital required during the past three years by means of less costly debt financing, which is the easier thing to do, was resisted. I urge each of you to continue to resist it—despite tax inducements. The sound capitalization which as an industry you enjoy today and which you must perpetuate as you grow and expand is one of your strongest bulwarks in slowing and finally stopping the entry of various types of political subdivisions into the electric utility business.

The foregoing viewpoints are based on my assumption that the policies of the United States Treasury Department and the Federal Reserve Board, formulated after many months of discussion and at times acrimonious debate, contemplate the continuance of relatively low interest rates. The new policy, which became effective toward the end of last February, presently involves a somewhat higher interest rate than had previously been effective and a less rigid control of the prices of government bonds. As a result, interest rates should reflect to a greater extent than was previously true, although not completely, the relationship between the supply and demand for money available for investment in long-term debt securities.

Sale of Common Stock

They are also based, and to an important extent, on the assumption that approximately one billion dollars of new capital will be provided in the electric power and light industry from the sale of common stock during the next three years. This large sum will be required over and above the estimated internally generated two billion, three hundred million dollars to maintain the sound investment status of your debt obligations and preferred stocks. The sound investment status must be maintained if you are to be successful in raising senior money at the costs which I have indicated. Indeed, in the case of a few companies in your industry, additional common stock equity will have to be provided if the senior securities are to be sold at any practical interest or dividend cost.

The major markets for your common stocks during the past three years have been individual investors and investment trusts. I would expect this to continue to be the case, although here again other types of investors are becoming more broadly interested in your securities. For example, New York State, which is the home of several of the largest life insurance companies, has recently enacted legislation which makes it possible for these life insurance companies to invest in common stock.

Another example is the enactment in 1950 of the amendment to the New York State Personal Property Law, which broadened the investment power of trustees to cover many other securities, including common stocks, subject to the so-called "prudent man" rule. Pension funds, which as we all know are growing by leaps and bounds, also represent an important market.

Personal Savings

An examination of the pertinent facts, with the assistance of economists in whom I have confidence, leads to the conclusion that it would not be at all unreasonable to expect that personal savings throughout the nation may aggregate 16 billion dollars in 1951. There are those who have the opinion that under certain circumstances the figures could be larger. In 1950 additions to liquid savings by individuals, not including changes in personal debt, were about 13 billion dollars. About 52 per cent of these savings went into insurance company and pension reserves or directly into securities.

I cite these figures because so many of you in the electric utility business, as well as executives in other lines of business comprising the industry of the nation, ask their bankers, "Where is the money coming from?" The money is available for investment. There is no question about that. The real question is how are the electric utilities going to obtain that portion of the available money which they require for their program in the face of the competition from other segments of industry which are also hot after the investor's dollar?

A few minutes ago I said that your single most important job is to create the facilities required. The facilities cannot be created unless the necessary money is available. I have stated that I believe the senior financing to provide the bulk of the new money is feasible on reasonable terms if the equity or common stock money is made available. Thus the keystone to the consummation of the job appears to be the raising of one billion dollars over the next three years through the sale of common stock.

Broad Viewpoint of the Industry

In approaching this most important phase of the general question of utility financing, I shall continue to address you from the broad viewpoint of the industry as a whole, although I recognize that the questions discussed are of varying importance in the individual companies comprising your industry. The management of each individual company should evaluate his own situation in relationship to the industry as a whole, and perhaps explore his particular set of facts with his financial adviser before arriving at a final conclusion as to what, if any, steps he should take to consummate his program for common stock financing during the 1951, 1952, and 1953 period which we are discussing.

The requirements to assure success in selling your common stock, it seems to me, are threefold. As I see them, they are, first, adequate rate increases, second, reasonable cash dividends, and third, enthusiastic cooperation from the nation's security dealers.

On the subject of rate increases: I believe I speak for the broad cross section of informed investors when I say to you that from the standpoint of the common stockholder—the owner of the business—your rates, generally speaking, are too low.

Insufficient Return on Investment

In the three years ended January 31, 1951, the net investment in electric utility plant increased by about four and a quarter billion dollars, or 39 per cent. In this same period, net electric operating revenues increased by about 195 million dollars, or about 26 per cent. The incremental return on the incremental investment comes to 4.6 per cent. While these figures are approximate, it seems undeniable that the electric utility industry has not been obtaining a sufficient return on its additional investment.

And in commenting specifically on the income from this recent investment by your industry, I do not intend to imply that, generally speaking, the rate of earn-

ings on the plant as it existed prior to 1948 was adequate or satisfactory. In the latest tax bill the Congress recognized 6 per cent as the rate utilities should earn. It seems to me that it is important for you to follow this up on the level of the state and city regulatory bodies. The normal and completely understandable distaste for attacking the problems incident to obtaining rate increases must be overcome.

You are fortunate in having an excellent trade association, the Edison Electric Institute, which has a fine statistical organization. I urge you to study the charts and tabulations which are thoughtfully and carefully prepared by that organization. They should be used in educating your consuming public — as well as your employees—to an understanding of the need for rate increases. They also provide unanswerable arguments for presentation to your regulatory bodies.

Applications for Rate Increases

Applications for rate increases in these days of rising costs should be presented before the earnings available for dividends are adversely affected, before the quotations for your common stocks decline, and before the salability of additional common stock is impaired. The technique of interim rate increases should be used more frequently, if the technical problems incident to a decision on a permanent increase are unusually burdensome. The increases applied for and those which are granted should not be in the lower level of the so-called zone of reasonableness, but should recognize the generally upward trend in operating costs and new capital costs which actually continue during the course of a hearing incident to an application for a rate increase.

Many rate increases have been applied for and many increases have been granted during the past few years, and I do not wish to minimize what has been accomplished with the intelligent cooperation of many of the regulatory bodies. However, if present plans are to be carried to a successful conclusion, you will superimpose a seven billion dollar expansion during the coming three years upon a six billion dollar expansion during the past three years. The compensation for the service rendered by the facilities recently added and those which are presently to be added must in all fairness reflect the inflation in costs which has occurred and which is continuing.

Otherwise, it is quite clear to me that we bankers will not only have difficulty in persuading investors to make an additional billion dollar investment in the common stock equities in your industry in competition with the investment possibilities of other segments of the national economy, but we will encounter unwillingness on the part of some of your existing common stockholders to continue their investment. No businessman owning and operating his own business would continue to expand if, because of an increase in over-all costs, despite the institution of every operating economy and operating efficiency which his ingenuity could devise, he would still have an inadequate rate of return on his total investment.

Difficulties in Increasing Rates

In stating my views with respect to dividends on common stock right on the heels of the viewpoints I have expressed with respect to your rates, I realize that it may be said that there are plenty of difficulties attendant upon obtaining permission to increase rates without injecting the question of increasing dividends. Nevertheless, it is a question which should be explored in any discussion of utility financing.

One of the valuable assets you as an industry have created is a confidence on the part of your common stockholders that your dividends are safer and are more likely to be paid in moderately bad times than the dividends on common stocks in many other industries. This is one of the reasons I believe you are going to be able to market your common stocks during the next three years. It is an asset which must be preserved. However, I cannot accept the concept that there is something unholy about an increase in the rate of common stock dividends where a reasonable increase is indicated.

Customers' Dividends

Customers of the electric utility industry have had their dividends, so to speak —in 1950 the level of residential rates was down 25 per cent as compared with 1940, while practically everything else they bought was up 78 per cent. Even a wave of generous rate increases would still leave electricity in a very favorable position as compared with any other necessity which your customer buys. Employees have had their dividends increased in the electric utility industry in that their unit of wages in 1950 was 183 per cent of that in 1940. The Federal government has had its dividends increased, inasmuch as Federal taxes paid by the electric utilities in 1950 took about 12.3 cents of the gross revenue dollar, whereas in 1940 the comparable figure was 8.3 cents. The increase is over 48 per cent. On the other hand, common stock dividends paid by electric utilities took 14.2 cents of the gross revenue dollar in 1940, and in 1950 that figure was reduced to 11.3 cents out of each dollar.

Yield is an important consideration in weighing the relative attractiveness of common stocks, particularly in the case of the regulated electric utility industry, where chances of capital gains are not as great as in other industries, and your dividend policies should be reviewed with this in mind. Dividend policies should be arrived at against the basic philosophy that you will be able to maintain the dividend rate, even in times of moderately bad general business.

I do not think your dividend policies should be particularly related to your construction programs. It seems entirely clear to me that, unlike some industries, yours is one where cash conserved by following an exceedingly conservative dividend policy represents no important percentage of the requirements for new equity capital.

"Best Foot Forward"

The electric utility industry paid out in the past three years, 1948, 1949, and 1950, approximately 70 per cent of earnings available for common stock dividends. Included in this over-all average are some companies paying more than 90 per cent and some under 60 per cent. With the growing interest of trust funds, pension funds, and insurance companies in common stocks, managements of electric utility companies would be well advised to put their best foot forward on this dividend matter in the competition to attract such investors. Generally speaking, your common stock financing will be facilitated by paying out as cash dividends up to perhaps 80 per cent of the available earnings.

My third requirement is enthusiastic cooperation from security dealers. There is a small number of companies represented here, probably not more than eight or 10, whose common stocks are so well known and so highly regarded that they really have little need of educational assistance from security dealers. These are the exceptions. Most of you require the facilities which are provided by security

dealers throughout the country for the education of the investing public.

You have done an exceedingly good job of educating the security dealers, particularly those located in the areas in which you operate, so that they are in position to discuss intelligently your business and your securities with their customers—the investors. Looking forward to the task you have before you, it continues to be important for you to circulate among security dealers and to tell your story to them over and over again whenever an opportunity presents itself. After all, security dealers do represent a primary channel of approach to investors.

Trying Phase for Security Dealers

I did not make the trip out here to Denver to burden you with the present-day troubles and difficulties of a security dealer, and I do not intend to do so. However, may I observe that we security dealers are going through a rather trying phase. On the one hand, 17 of us are currently defending ourselves in a Federal court against charges of conspiring to restrain and monopolizing the business of negotiated underwriting of securities, brought by the Department of Justice.

On the other hand, the 17 unfortunate defendants, plus many, many other security dealers, are continuously competing with each other in an effort to be of service to you gentlemen in the underwriting and distribution to investors of your debt securities and your preferred and common stocks. In many instances satisfactory past relationships between the management of an issuing company and a security dealer, which brought about a rather intimate knowledge of the business and particular problems of the issuing company by the security dealer, are being disregarded. The fact that a given security dealer or group of dealers assisted in solving a complex problem or consummated a difficult job of financing in trying or unsettled times all too frequently seems to be forgotten. The particular qualifications of an individual security dealer or group of dealers to handle a particular job in the most intelligent and experienced fashion receive little consideration.

Too often, the sole and only factor in the final determination of the underwriting and sponsoring security dealers is the question of price—the highest conceivable price to the investor and the lowest possible compensation to the security dealer.

I submit that, generally speaking, with respect to common stock and quite often with respect to preferred stock, you managers of the electric utilities of the country facing an equity money-raising job of magnitude might be well advised to throw a few factors on the scales in addition to price. When you are buying legal services, accounting services, engineering services, and when you are making contracts for important items of equipment, I know you give thought to experience, knowledge of the problem, and a record of ability to render the service required.

I suggest that it may be desirable to approach your relationships with your security dealers on the same basis. The judgment in the matter of offering price or dealer compensation of the lunatic fringe of the investment banking industry, who try to commit suicide by working for nothing—yes, we have a lunatic fringe and there have been occasions when my firm has been part of it—does not necessarily represent the wisest course which could be followed. Security dealers are being inadequately compensated for risks which they are taking, and they are performing services for fees which in many cases actually fail to cover the costs they incur in connection with those services. I am sure that out of the present unhealthy situation a more reasonable pattern will eventually emerge.

Management as Stockholders

Many investors, both individual and institutional, feel that their interests as stockholders are more likely to be given appropriate consideration if management is sitting right beside them as stockholders. Everyone appreciates that it is difficult for an individual to accumulate capital with personal income taxes as they are, and investors are not thinking in terms of the dollar value of management's investment as much as they are thinking of the principle involved. A review of the proxy statements on file with the Securities and Exchange Commission indicates that a surprisingly large number of the officers and directors of electric utility companies, particularly of those which have been disposed of by holding companies in the past six years, have zero holdings of the common stock of their company.

I believe that you would achieve a very real benefit, impossible to evaluate exactly but nevertheless a benefit, if between now and the time your next proxy statements are in the mail, your officers and directors were to become common stockholders in your companies in an amount related, of course, to their individual resources. Along these same lines, the practice of encouraging employee ownership is becoming more and more widespread in manufacturing companies. Enlightened managements of industrial concerns which enjoy the best relationships with union representatives and with employees are instituting plans, varying in detail, under which machinery is set up for employees to purchase common or preferred stock, either outright or on a partial payment plan. I would think this a fertile field for exploration and study in the electric utility business.

"The Accident of Assignment"

I, as a security dealer, have been talking to you as management of the privately owned—investor owned—electric utility industry. Now, for a few concluding minutes, I would like, as an American citizen, to talk to you as a group of American citizens. In the Army there was an expression, "the accident of assignment." Some men are assigned to the Pentagon Building and other business or administrative desks, where papers fly "fast and furious" and the red tape gradually unwinds. Others are assigned to combat areas, where the bullets fly. The men have no vote in the matter. Whether they are out in front fighting or in the rear shuffling papers is an accident of assignment. You gentlemen are out in front—in the combat area—in the struggle to keep our government out of business. That is your assignment as citizens, even though it was not of your own choosing.

The presence of tax-exempt, unregulated political subdivisions of our government in the electric utility business on a permanent and enduring basis—without a uniform system of accounting—is wrong. The authorities, districts, departments, commissions, counties, cities and townships should not be in business under a capitalistic system. That is the beginning of a socialistic system, and when it begins, no one can tell where it will end. The rank and file of your employees will be working for government. Your regulatory bodies will be out of business.

Perhaps the ultimate goal—it seems to me the best suggestion I have heard—should be to vest the ownership of forward looking government hydroelectric developments and the responsibility for

(*Continued on page* 255)

Productive Capacity—Its Problems and Prospects

By J. K. Hodnette
Vice President, Westinghouse Electric Corporation

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 5, 1951

TODAY the electrical industry faces two sets of problems. Our common problems fall into short-range and long-range areas.

Many of the short-range worries are engendered by the necessity for a dual economy—one of peace and one of war. Such a program obviously is something entirely new in our history. No one knows how well it will work. But, workable or not, the success of the program depends chiefly on the performance of our country's strongest asset—its industrial plant.

The immediate short-range problems are those of getting men, machines, and materials; of meeting the power load; of manifold regulations; of wondering whether some people are going to use this emergency, as they did the last one, as an excuse for expansion of government in business.

Long-Range Problems

The long-range problems are how to meet permanently higher fixed costs and break-even points when the emergency is over; whether the industry has committed itself too far ahead; and who in the future will use all the new generating capacity that has been built.

If it is any comfort, I can assure each of you who are struggling with your own problems that you have lots of other good people in this country worrying right along with you.

To us, as citizens of a world split down the middle by power-mad gangsters dedicated to the proposition that all men are potential slaves, only one question counts today — can industry handle the job that is being asked of it?

On the basis of your industry's expansion in the past five years, one would answer with an immediate and unqualified yes. As an unofficial representative of the electrical manufacturing industry, I would like to say that all of us are gratified to have helped that expansion. Your generating capacity is 40 per cent higher than it was on V-J day. Since the war, you have spent ten billion dollars in the largest construction program

J. K. Hodnette

ever undertaken by any single industry in the United States. In this emergency you are ready with almost half of your generating capacity in efficient, economical equipment that is less than ten years old.

But even this record is not enough in itself to answer the question I have raised. That is all in the past; the real answer depends on the size of the job yet to be done.

You will have a 50 per cent increase in capacity in the next four years, which is even more than called for in President Truman's economic message of last January. Hollywood hasn't yet discovered words super-stupendous enough to do justice to that record. In short, the utility industry is and will be well prepared to handle all demands for peace or war, cold or hot.

Can Suppliers Meet Schedules?

You must assume, of course, that your suppliers will be able to meet schedules on the 26 million kilowatts you now have on order and will be able to meet any further demands you may make. That depends on a number of factors, not all of them under the control of those directly concerned. But it is, I feel, a sound assumption that you will get what you have ordered and, in so far as can be seen today, close to scheduled delivery dates.

We manufacturers have been expanding right along with you. To any company long associated with the electrical industry's expanding facilities, to keep pace with the industry's rapid growth is a normal part of doing business. Published figures are available for General Electric, Allis-Chalmers, and Westinghouse, who are typical of the electrical manufacturing industry. In the last ten years, total sales of these companies have increased 300 per cent. They now have a total of about 200 plants—at least, that was last week's count. Nearly half of them have been built since 1940, and more than 750 million dollars have been spent on these and older plants.

In production of generators, the country's manufacturers had the capacity to turn out approximately three and one-half million kw annually before World War II. Scheduled production is nearly nine million kw for 1951 and 12 million kw for 1952. Electrical manufacturers also have capacity to build 47 million kva in power transformers, with similar increases for switchgear, condensers, motors, and many other things you need.

Increased Size of Generators

One favorable factor is the continued increase in average size of generators, transformers, breakers, and other items. The average size of Westinghouse turbine-generators, in ratings of 10,000 kw and larger, was 45,000 last year. It will be 48,000 this year, 57,000 next year, and 65,000 in 1953.

To the extent that I may speak for the manufacturers, let me assure you that we are extending ourselves to the limit. Certain metals, including copper, chromium, cobalt, nickel, and aluminum, are in tight supply. As about the seventh largest consumer of steel, the electrical manufacturers have that problem, too. There are shortages of chemicals and such materials as resins, asbestos cloth, and rubber gaskets. Valuable time has been lost in labor disputes. We must follow the orders of the National Pro-

duction Authority on the use of critical materials and in producing and delivering the apparatus you have ordered.

Our industry has been confronted almost continuously for the past ten years with shortages of materials. But the ingenuity of our purchasing, engineering, and manufacturing people has overcome these problems time and time again. They have done it by developing new sources of supply—new materials—by expanded use of substitute materials.

Bettering Production Figures

So, despite these complications, the electrical manufacturing industry this year will equal or exceed last year's production figures in most classes of power apparatus. It is our intention, not to meet production figures and schedules, but to better them. I want to go on record as saying, "Chart your growth, tell us what you need, and the electrical manufacturers will design, build, and deliver it.

If I may cite the case of the company I know best, and simply because I do know it best, in Westinghouse our manufacturing capacity has increased about 50 per cent in actual physical volume since the end of World War II.

More than one-third of our productive capacity is now going to meet military requirements. Since that is typical of what others in the manufacturing industry are doing, you may want to hear a little about it.

We are building or expect to build many of the same sorts of lethal hardware we turned out during the last war —electrically driven torpedoes, propulsion equipment for ships, stabilizer units for tanks, many kinds of electronic equipment, and so forth. Among the new products is the jet engine; we have plants at South Philadelphia and Kansas City which are working exclusively on jet engines for high-altitude, high-speed, long-range aircraft.

Peacetime Products

Thirty-five per cent of our company's capacity is being used to fill these and other military needs, but the other 65 per cent is a lot of capacity. Our production of consumer goods this year may be as high as in 1949, and only 20 to 25 per cent below the record year, 1950. We expect our production of generating and distributing equipment to equal or exceed that of 1950. A few months ago we let the contract for additional facilities at East Pittsburgh which will increase by 65 per cent our capacity to produce heavy generators. These and other new facilities for our normal peacetime products will be in production in 1952.

One serious problem we all share is the shortage of trained engineers. In the past two years about 100,000 engineers of all types have been graduated, and rapidly and easily assimilated by industry. Up through 1950 we had not completely overcome the shortage of engineers created by depression, war, and postwar industrial expansion.

Now, in 1951, we will have about 32,000 engineering graduates. We know that this is not enough. The scramble for men now taking place on every engineering campus in the country is proof of it. As we look further ahead, the picture gets worse. The U. S. Office of Education estimates that only 25,000 engineers will graduate in 1952, and 20,000 in 1953. In 1954—it hurts me to say this—there will be a maximum of 17,000 engineering graduates.

Incentive for Potential Engineers

Providing the incentive for young men to become engineers is the job for all of us. But this is only part of the solution. Another is proving to Washington, to the populace in general, to the newspaper columnists and especially to the young engineer himself, that industry needs him as much as anybody. The armed services may want many thousands of engineers in the next few years.

I recognize all the moral values, all the complex problems involved here. There is considerable popular pressure against deferring college students. But an adequate supply of engineers is a sheer necessity for national survival. Industry must have the technical manpower if it is to continue to perform the miracles Americans are demanding of it. Germany put its electronic scientists in the army, and so lost out on the development of microwave radar. We must not let anything like that happen here.

Those are some of the short-range problems, and I like them no better than you do. However, they are not the most difficult we have ever faced, and working together, we will master them.

The other problems, I have said, are long-range. There is the danger of a permanently higher break-even point. There is the worry of whether the electrical industry may have overextended itself. There is the problem of what one day will happen to a greatly expanded industrial productive capacity.

It is only fair to warn you that when it comes to faith in electric power and manufacturing, I am a prejudiced witness. I had an experience which it may not have been the privilege of all of you to enjoy. I once saw electricity born, and put to work in my home town.

Electrifying a Southern Town

Three years after the first settler came to Denver, and in the same year the pony express started its first trip westward, the American South, my native section, ran into some unpleasantness. As a result, industrial progress was delayed, and electric power came late to many of our southern communities. It came late to the little Alabama town of Notasulga, northeast of Montgomery, where I was born and brought up.

I have heard of provincial American towns which initially looked on electric power as the work of the devil, but that was not the case in my home town. In 1918 everybody talked of just one thing —the progress of the installation of the new electrical system. My father, like many other citizens, had our home wired for the new lights long before the Alabama Power Company strung the bright ribbons of copper to our town. My own interest was personal and selfish, for I was old enough to take on part of the job of cleaning the chimneys of a dozen kerosene lamps.

One hot summer night, everyone who could walk or crawl went down to the light plant, as we called it, to see the switches closed to send the first current through the lines. The crowd cheered, and finally everyone dispersed, we boys last of all. I started home, and as I turned the corner of my street, I saw my house ablaze with lights—electric lights.

We were sure then that we had gone about as far as anyone could go. In terms of 1918, we had.

The Miracle of Electricity

I get back home occasionally. We had 863 people when I was last there, with six more, maybe seven, in the oven. When I look into the homes of this small, not-very-prosperous southern town I still see the miracle of electricity. Nearly every house has an electric refrigerator, a sweeper, a washing machine, and a radio. And every day, families are buying electric ranges, water

heaters and other appliances. There hasn't been a lamp chimney cleaned in that town in 30 years.

As long as I can remember, there has been plenty of pessimism in American business. And those who have taken the pessimistic view of the future have never lacked good reason for their pessimism. There hasn't been a really calm or "normal" year in our economy. We have gone through a money panic, a world war, a postwar readjustment, a boom and high prices, a bust, a depression and low prices, a New Deal, a recession, another world war, another readjustment, a Fair Deal, an inventory recession, and now a police action in Asia. During these same turbulent years we have also seen the most amazing half century of economic progress ever achieved by any country.

Pessimism Is Unrealistic

It is my "educated guess" that any pessimism over the long-range prospects of American industry is as unrealistic as it was during any of these years or, for that matter, only 18 months ago. You may remember a poll which *Fortune* magazine took among businessmen during the late months of 1949. The question was asked "How do you feel about the business outlook for 1950?" Of those asked, 73 per cent predicted that activity would decline or at least would not perceptibly increase. Twenty-six per cent thought business would be moderately higher; only 1 per cent that it would be sharply higher. The results of this poll were printed in January, 1950, and even before Korea erupted in June, industrial production was up more than 10 per cent and headed higher.

At the same time, it was obvious to us in Westinghouse that American industry was expanding to meet the challenge as evidenced by our backlog of orders for heavy capital equipment.

We expect your industry to grow at an average rate of something like 6 per cent per year for the next 15 years. All the evidence points to the conclusion that the American economy of five, ten and 15 years from now will need and intensively use these new service facilities. There is no indication that we will experience saturation of the American market, or run into extended periods in which our full productive capacity will not be needed.

Long ago I ceased to understand the meaning of this word "saturation." There has been scarcely a year in the past 30 in which I haven't heard that one manufactured product or another had finally saturated the market. If there is a true saturation point in the American economy, if there is a limit to the needs and desires of the American consumer, then I haven't seen it, nor do I expect to see it in my lifetime.

Unlimited Industrial Potential

As long as we have the confidence, the vision, and commercial sense, ours is an industry with unlimited potential. And here, it seems to me, is the area in which lies the answer to the long-range problems of the higher break-even point and the poorer profit ratio.

I am, by training, an engineer, not an economist, but I do know that when a company must sell twice as much dollar volume per employee to make the same profit that it did ten years ago, the answer lies in more customers and in more sales per customer. When this emergency ends, or perhaps when military pipelines are filled a year or two from now, the marketing departments of our industries must be prepared to give us an enormous, low-cost production of customers on a scale far greater than anything hitherto achieved.

One thing only, I am convinced, can stop American industry from expanding and improving over the years, from bringing a higher and better standard of living to all people. That one thing is the growth of centralized controls over our economic life. In a near-war emergency like the present, when the demand for certain basic products greatly exceeds the supply, we must, of course, have controls only to ensure that our military forces get what they need and that what remains is equitably distributed.

Centralized Controls Throttle Growth

But I believe, just as firmly, that perpetuation of these controls after the emergency ends could throttle our growth. Between V-J Day and the end of 1950, American business invested over $84 billion in new plants and equipment. I do not believe such a tremendous investment in progress will be risked again if companies are not free to determine what products they will make, what prices they shall charge, and what profits constitute a proper return on the stockholders' money.

Call it state planning, or socialism, or what you will, but a system of concentrating all economic controls and economic planning in the hands of a few men withers whatever it touches. In the words of a British economist, "Central planning ultimately turns every individual into a cipher and every economic decision into blind fumbling, destroys the incentives through which economic progress arises, renders the economic system as unstable as the whims of the few who ultimately control it, and creates a system of wire-pulling and privileges in which economic justice ceases to have any meaning."

Socialism is no longer a Utopia; it has a record. That record was created in the suffering and austerity of the people of Great Britain, and it is a record of frustration, blunder and disappointment. The pitiful failure of the British socialists is now written large in history for everyone to read. I am convinced that our people will read it, and profit by the lesson it teaches all of us.

This nation has everything it needs to move ahead, to fulfill the aspirations of our people, to defend itself, to offer leadership to the rest of the world. We have the production knowledge and the tools to do even better than we have in the past. We have the men and the imagination and the morale to continue our progress.

Some day, God willing, we in this country will be able to enjoy peace again and devote ourselves solely to productive work, and then we will use this expanded economy of ours as we should use it; for better living; for the advancement of art, science and commerce; for solving the problems that have plagued mankind through all its existence.

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The Path to Perdition

By A. J. G. Priest

Reid & Priest, and Vice Chairman, Section of Public Utility Law, American Bar Association

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 5, 1951

MY dear father has told me that some thirty-five years ago he was engaged in an Idaho legislative contest of heroic proportions. Precise details have been lost in the mists of history, but father recalls that it was a kill-or-be-killed struggle, and he also remembers that it produced this deathless quatrain:

The tarantula sat on the scorpion's back,
And he chuckled with ghoulish glee.
Says he, "I must lick this son-of-a-such,
Or, by Gad, he'll lick me!"

That tender verse has, I believe, some measure of applicability to the present conflict between the electric utility industry and the Department of the Interior. Let me hasten to say, however, that I would be the last to suggest that Secretary Oscar Chapman is a scorpion or that my good friend Louis Sutton is a tarantula. I feel very strongly that an epithet is not an argument, and I am sure that we of the electric utility industry will not descend to the techniques which were used against us in the grim 1930's.

Irreparable Damage

Thus, I would not call Secretary Chapman or Douglas Wright or Ben Creim, for example, either a Communist, or a Fellow Traveler, or even a Socialist, because any such accusation on my part would be without proof and therefore would be both reckless and irresponsible. But I do say that the persistent and determined efforts of these and similarly-minded gentlemen to promote public power have already done irreparable damage; that the road upon which their feet are set is the road to socialism; and that, if we may judge by the experience of our British cousins, the road to socialism *is* the path to perdition.

Archibald MacLeish may be somewhat startled if he learns that he has been quoted in this connection and in this connotation, but I believe, with Mr. MacLeish, that we *can* create "a society

A. J. G. PRIEST

which will prove that the alternative to economic slavery need not be political slavery and that a free and responsible human being, thinking and acting for himself, is still a wiser governor of a nation than all the bureaus of the state police."

I am going to address myself particularly to what I think most of you know as the "preference clause" and the "continuing fund," two devices which, as used by our Interior Department friends to accomplish their purposes, are both extra-legal and Machiavellian. These devices are not contemplated by the legislation under which our adversaries purport to act, and, if you will forgive me for being a bit rhetorical, they definitely are indecent unguents spread upon the path to perdition.

Flood Control Act of 1944

Preference clauses are not something new. As long ago as 1906, the Secretary of the Interior was authorized to give preference to "municipal purposes" in leasing power developed at reclamation projects, and there are similar provisions in a large number of the Federal enactments in this field. Section 5 of the Flood Control Act of 1944 is typical, and I therefore quote its pertinent language:

Sec. 5. Electric power and energy generated at reservoir projects under the Control of the War Department . . . shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles . . . Rate schedules shall be drawn having regard to the recovery . . . of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized . . . to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately-owned companies.

Basic Congressional Intent

Please note the language: disposition of electric energy "in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles" and rate schedules "drawn having regard to the recovery . . . of the cost of producing and transmitting such electric energy." There you have the basic Congressional intent. Then comes what obviously is a proviso granting a preference in the sale of such electric energy "to public bodies and cooperatives." Kindly observe, too, that such energy is to be made "available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately-owned companies."

With that language in mind, listen to a directive issued by Secretary Harold L. Ickes on November 28, 1945. This directive was recently put in evidence by Richard Arnold in the course of his cross-examination of Southwestern Power Administrator Douglas Wright in a current proceeding before the Arkansas Public Service Commission. "Honest Harold's" instructions are still in effect, as Mr. Wright testified. Indeed, Mr. Wright said that he was bound by the directive "if I want to keep my job."

But here is Section 3 of the Ickes' directive, issued, if you please, in purported reliance upon the Congressional language which I read you a moment ago. The italics are mine.

> To provide the widest possible use of and reasonable outlets for electric energy marketed by the Administrator and the purchase thereof by the ultimate consumer at the lowest possible rates consistent with sound business principles, and to prevent the monopolization of such energy by limited groups, the Administrator, to the extent and in the manner that in his judgment may be required, *shall advise and assist public bodies and cooperatives who are purchasers or potential purchasers of electric energy from the Administrator in acquiring, operating and maintaining distribution systems, or any portion or portions thereof, and related electric facilities and equipment.*

Talent for Fantasy

Mr. Ickes has rare imaginative gifts, and perhaps Mr. Chapman does too, but I think it would require a greater talent for fantasy than either of them possesses to read into Section 5 of the Flood Control Act any Congressional intent that agents or representatives of the Department of the Interior should advise and assist public bodies and cooperatives who are potential purchasers of electric energy generated at multi-purpose dams in "acquiring, operating and maintaining" public power distribution systems. In effect, Secretary Ickes was saying to his Southwestern Power Administrator, and Secretary Chapman continues to say, "Do everything you can to convert investor-owned, tax-paying utility property into government-owned, tax-eating utility property."

Certainly no Congress since the first Roosevelt administration could conceivably have authorized any such assault upon the electric utility industry. This attack upon an important segment of the American economy was launched, and is being carried on, without Congressional sanction and in violation of Congressional intent.

Congressional Instructions

I challenge the Department of the Interior to find in the Preference Clause any meaning except this: if, when the Department is ready to dispose of power from a particular multi-purpose project, there are two potential purchasers, one a public body and the other an investor-owned utility, making equally satisfactory offers, the offer of the public body will be accepted. Congress very definitely has not instructed the Department of the Interior to decline to furnish power to an investor-owned utility which is able and willing to purchase such power at the Government's bus bar, and then proceed to spend the taxpayers' money to construct transmission facilities for the purpose of carrying that very power substantial distances to preference customers.

Let me suggest an analogy which I believe to be accurate. You can imagine what a resentful howl would echo around Pike's Peak if the Denver police department, acting under a veterans' preference clause and having ten vacancies, employed the only two veterans who applied, but refused to hire qualified non-veterans who sought the remaining eight jobs and then proceeded to spend Denver tax money beating the bushes in Colorado Springs and Cheyenne in an effort to persuade veterans to file their applications. That, please believe me, is precisely what the Interior Department does when it spends millions of tax dollars to transmit power to alleged preference customers who are unable or unwilling to meet legitimate and proper offers made by investor-owned utilities.

New Meanings

But, of course, drab ordinary words which prosaic persons like ourselves had somehow believed we understood take on new meanings when they are passed through the prisms of more highly endowed minds. The word "preference," as used in this connotation, had its normal meaning from 1906 at least until 1930. For example, the solicitor for the Department of the Interior had this to say in an opinion dated January 6, 1930, construing the Boulder Canyon Act of 1928, which contained a preference clause similar to that set forth in Section 5 of the Flood Control Act of 1944:

> . . . Public interest includes the necessity for making a good business contract which will guarantee the return of the Federal investment as required by section 4(b). The primary public interest is in the soundness of the contracts and the solvency of the Contractor, not in the corporate or municipal character of that Contractor. All preferences are subordinate to this public interest. . . . Concerning the question whether a municipality or state has a preference for power which it proposes to sell outside its boundaries as against a bid for power by a privately owned public utility proposing to sell in the same area outside the boundaries, the "preference" of the municipality is a preference in consumptive right, not a merchandising advantage.

Preference *was* given to public bodies when power generated at the Hoover Dam was disposed of and, as a result, the Los Angeles municipal system probably was permitted to expand at the expense of existing electric utilities, but contracts for Hoover Dam power were negotiated prior to the completion of that project, and no Federal transmission lines were required to be built. Purchasers built their own facilities and took delivery at the project bus bar.

Discrimination Clauses

Under more recent legislation, beginning with the TVA in 1933, the preference clause has received a quite different interpretation. In fact, the preference clauses, which up to that time had been reasonably administered and deserved to be called "preference" clauses, became, and have continued to be, what C. N. Phillips describes as "discrimination" clauses. The process was comparatively plodding and even now the misinterpretation and misuse of preference clauses is often furtive rather than forthright.

But spectacular results have been achieved by the Federal power monopolists. In the TVA territory alone, 33 investor-owned companies have been wiped out in whole or in part; 95 municipalities and 50 cooperatives have been placed under captive contracts; and an inexorable Federal power monopoly has

been established in a service area twice as large as the Tennessee Valley. Furthermore, as you all know, unrelenting pressures are being applied in the Pacific Northwest, in the Southwest and in the Southeast, with exactly the same kind of Federal power monopolies definitely in contemplation, and the pressure also is beginning to be exerted in many parts of the Missouri Valley.

Public Power or Else

Let me quote an editorial published just a few months ago in the *Sioux Falls Argus-Leader,* which tells an all-too-familiar story under the heading "Shift to Public Power Or Else, Washington Says:"

> The Bureau of Reclamation announced Sunday plans for a considerable extension of the transmission lines from the hydro-electric dams, along the Missouri river. What the extension of the lines means is that much of the power to be generated along the river in South Dakota will move out of this state unless—a very important unless—South Dakota shifts to public power.
>
> The story is an old one, but perhaps t should be reviewed. Federal legislation governing the distribution of power from the river dams provides that publicly-owned electrical systems, including cooperatives, have first priority. If there's any power left over after their wants have been satisfied, then privately owned companies may purchase it for distribution.
>
> This provision resulted in a considerable uproar in South Dakota because the electrical distribution systems in this state are generally privately owned. It was the contention of many South Dakotans, including the *Argus-Leader,* that it should not be necessary for communities in this state to abandon private enterprise and adopt public ownership to share in the benefits accruing from the dams. Their thought was that it should be the privilege of a community to decide for itself, without pressure or favoritism from Washington, whether it wanted to have a municipal electric system or a privately owned one. . . .
>
> Obviously the Bureau of Reclamation doesn't intend to allow any of this power to go to privately owned electrical systems. It is determined, apparently, to force public ownership upon any community before it can obtain any power from the dams.
>
> This doesn't make sense. It is unfair and wholly contrary to the American way. The plan is clearly one set up by socialistic planners.
>
> Most major cities in South Dakota are now served by privately-owned distribution systems. Among them are Aberdeen, Huron, Mitchell, Yankton, Sioux Falls, Lead, Deadwood, and others.
>
> Watertown, for example, is served by a municipally owned system.
>
> As it now stands, Watertown can obtain power from Randall, but Aberdeen can't.
>
> Just why should the people of Watertown be entitled to this privilege and the people of Aberdeen denied it?
>
> Does it make sense to say that the Aberdonians must abandon their private enterprise system in order to share in whatever the benefits are? Are the Watertown residents to be the chosen people, the favored class, solely because they have a municipally owned power system?

Despite the strenuous efforts of public power advocates within and without the Administration throughout the past 18 years, more than four-fifths of the consumers of electric energy in this country continue to be served by investor-owned companies, as against less than one-fifth served by various public bodies and government agencies. The four-fifths represent somewhat more than that percentage of the nation's taxpayers who provide the funds and supply the credit for the construction of all such governmental projects, but the four-fifths receive no benefit whatever from tax-free government energy until the requirements of existing preference customers, and such potential customers as the Department of the Interior can conjure into being, are completely satisfied.

Two Alternatives

Such patent and blatant discrimination is wholly unjustified, except perhaps in the minds of those who believe that their ultimate goal, socialization of the electric utility industry, justifies whatever means they may employ. There obviously are two ways in which the discrimination can be removed: either make tax-free government power equally available to public bodies and investor-owned utilities alike or completely socialize the entire electric utility industry.

The preference clauses clearly are the keystone of the public power arch. Indeed, the whole program of the Department of the Interior and its allies among the public utility district brethren—the promoters of grandiose public power schemes for private profit, sundry other Federal agencies, and the various peddlers of tax-free bonds for the particular benefit of persons in high-income brackets—depends upon these preference provisions which discriminate so outrageously against four-fifths of the people.

Secretary Chapman, in his statement before a Senate Subcommittee on May 8, 1951, complained bitterly about the Keating amendment restricting the construction of additional transmission lines, saying, among other things, that if that amendment is concurred in by the Senate, "The established public power program would thus be thwarted and preference customers, including rural electrical organizations and Federal agencies, would be denied the benefit to which they are entitled under the law." It may well be the understatement of the week to say that there are several persons in this audience who will not leap from any bridges whatsoever if the hideous prospect which Secretary Chapman envisions becomes a reality.

Eloquent Resolution

Fortunately, there are others who join us in viewing the preference clauses as less than inspired. For example, at the Mountain-Pacific States Conference of Railroad and Utilities Commissioners representing eleven Western states, held at Seattle May 11th and 12th, the following resolution, which speaks eloquently for itself, was adopted:

> Whereas, provisions contained in various federal statutes give preference to public bodies and cooperatives in the sale of electric power produced at government power plants, which preferences unjustly discriminate against numerous citizens and electric users who are served by electric utility companies under state commission regulation; and
>
> Whereas, such preferences have been and are being used to foster and expand public power projects to the detriment of the customers of regulated utilities; and
>
> Whereas, the benefits of power produced at Federal projects should be made available to all users of electricity on equal terms;
>
> Now, therefore, be it resolved that the Congress of the United States be urged to adopt a Federal power policy which will make power generated at

Federal projects available to all citizens and users without discrimination, and that the provisions contained in existing statutes relating to the disposition of electric power and energy from Federal projects be rescinded.

Furthermore, there is less and less public support for the public power program. The recent Fifth National Opinion Survey conducted by Opinion Research Corp. shows that today only 37 per cent of the public favor some form of government operation of their local electric utilities, as compared with 43 per cent as recently as 1949; that only 15 per cent feel that their local utilities make too much profit, as compared with 20 per cent in 1949 and 25 per cent in 1945; and that only 16 per cent believe that Federal government production and sale of all electricity in this country would be a good idea, as compared with 25 per cent in 1949.

No Free Lunch

I think it may fairly be said that the public at last is beginning to realize the truth of that profound aphorism, "There is no such thing as a free lunch." It has taken some time, but taxpayers in New York City and Denver and Des Moines finally have received an inkling that they are paying the bill for tax-subsidized, so-called cheap power in Tupelo, Miss., Nashville, Tenn., and Seattle, Wash.

The situation was admirably summarized in The National City Bank's monthly letter of June, 1950:

> The well-advertised cheapness of public power rates is a myth from a national standpoint. . . . What one citizen saves on his electric rate, another citizen makes up in his tax.

Since Denver pays part of the bill for Tupelo's tax-subsidized electric energy, perhaps Tupelo would be willing to provide its appropriate share of the Federal funds required to supply false teeth at bargain prices for every resident of Denver, whether needed or not. Or better yet, so long as all the taxpayers provide one-fifth of the country with cheap power, let the remaining four-fifths, the discriminated-against four-fifths, be furnished one bottle of free Bourbon for each two bottles they buy. Even a corporation lawyer might get himself elected to Congress on such a platform!

By way of summary, the clauses in existing Federal legislation, as they have been abused, misinterpreted, and enlarged upon in recent years, have enabled a closely-knit group to set up vast Federal power monopolies not subject either to local regulation or to local taxation. Furthermore, if the discriminatory techniques now being used continue to be employed, the socialization of our electric utility industry can be achieved in less than a generation. If we believe in the free enterprise system, it surely must be said that, not for the sake of what Secretary Chapman would call "special interests," but in the overall national interest, this trend must be stopped and then must be reversed.

I am indebted to W. A. Bryans, III, of the Denver Bar for this significantly apposite quotation from the Supreme Court's decision in the *Carter Coal Company* case,[1] written by another great far-Westerner, the late Mr. Justice Sutherland:

> Every journey to a forbidden end begins with the first step; and the danger of such a step by the Federal government in the direction of taking over the powers of the states is that the end of the journey may find the states so despoiled of their powers, or —what may amount to the same thing —so relieved of the responsibilities which possession of the powers necessarily enjoins, as to reduce them to little more than geographical subdivisions of the national domain.

Now let me devote just a few moments to another device, also clearly beyond the intent of Congress, which our public power friends are attempting to use, particularly in the Southwest and the Southeast. And, of course, I am referring to the so-called "continuing fund."

Never Does Go Dry

The Southwestern Power Administration (SPA), which has been the Interior Department's bellwether in the development and use of this interesting technique, received in 1949 Congressional authorization[2] for a "continuing fund" of $300,000 to defray "emergency expenses necessary to insure continuity of electric service and continuous operation of facilities" employed to transmit surplus energy to purchasers. The Congressional intent clearly was to permit the administrator to enter into contracts with investor-owned utilities similar to his agreement with Texas Power and Light Company, an agreement which had made unnecessary the construction of competing government transmission lines in that company's service area.

However, Administrator Douglas Wright, not content with the purpose for which Congress approved his continuing fund,[3] has proceeded, by a simple process of writing one check after another, to expand his $300,000 authorization to an aggregate figure equaling the gross receipts of the Southwestern Power Administration.

As Richard Arnold of Texarkana said in the pending Arkansas case, Mr. Wright's "continuing fund . . . never does go dry. It is like a bottle of milk that appears on your doorstep every morning. You use it all day and put it in the ice box and the next morning you get up and it is full."

Effective Control

Taking full advantage of his magical milk bottle, Mr. Wright, the Rural Electrification Administration, and certain super co-operatives set up to operate in Missouri and in Arkansas have made arrangements under which the co-ops are to borrow REA funds in the amounts necessary to construct steam generating plants and extensive transmission facilities. Then Mr. Wright is to take over under long-term power contracts and leases which will place all of these newly constructed facilities under SPA's tight controls, which could hardly be more effective if Congress had made direct appropriations to the SPA for the construction of every kilowatt of steam generating capacity and every mile of transmission line.

By way of testing the legality of the Missouri scheme, Kansas City Power and Light Co., Missouri Power and Light Co., Union Electric Co., and others have brought an action against Secretaries Chapman, Brannan and Snyder, SPA Administrator Wright, and REA Administrator Wickard to enjoin the whole Missouri SPA-REA-super co-op program. Counsel, headed by Raymond T. Jackson of Cleveland, has charged in its complaint that the effect of the proposed arrangements would be (1) to lend REA funds unlawfully, (2) to enable SPA in substance to construct unnecessary transmission lines in violation of the Flood Control Act and the Rural Electrification Act, (3) to enable SPA to acquire steam generating plants which the Congress has not authorized

[1] Carter vs. Carter Coal Company, 298 U. S. 238, 295-296 (1936)

[2] 63 *Stat.* 868, October 12, 1949

[3] *Sen. Rep.* No. 1941, 81st Congress, 2nd Session, p. 130.

and (4), among other things, to enable SPA to enter into destructive Federally subsidized competition with the plaintiff companies. Government counsel's motion to dismiss the complaint has been denied and the case is now ready for trial, but court calendars in the District of Columbia are so painfully clogged that it may not be reached before the Spring of 1952.

In Arkansas the super co-op, through which Administrator Wright is proposing to build what certainly will not be a low-cost steam plant, as well as a substantial network of transmission lines, is attempting to obtain a Certificate of Convenience and Necessity from the Arkansas Public Service Commission. This case is still pending, but let me say that the presentation being made by Southwestern Gas and Electric Co., Arkansas Power and Light Co., and the other companies concerned seems to me overwhelmingly cogent and persuasive.

Increasing Awareness

It is only fair to observe that the Congress is becoming increasingly aware of the devious techniques which our public power friends persist in using. For example, the House Committee on Appropriations,[4] reporting on the Interior Department Appropriation Bill for 1952, recommended the reduction of the Southeastern Power Administration's "continuing fund" from a proposed $200,000 to $50,000, with these express limitations:

> The fund recommended is to be available to defray only emergency expenses and those necessary under unusual circumstances to insure continuity of electric service and continuous operation of Government facilities in the area. It is not to be available for the rental of transmission or related facilities as regular operations, nor is it to be available for the purchase of electric power and energy to firm up the Government's system.

Again, in the course of his examination of D. O. Beasley of the Interior Department on March 12, 1951,[5] Congressman Ben F. Jensen, ranking Republican on the Interior Department Subcommittee, said that "there have been other employees of the Department of the Interior who have seen fit to slip around through the back door in the Southwestern Power Administration and make contracts with other power-producing and transmitting agencies, which do not square in my opinion with the laws of the land."

Through the Back Door

Then, Mr. Jensen went on to observe:

> . . . I think we should look at this language very, very carefully to see to it that the will of Congress is obeyed, and that we have no more of this kind of business, of an agency of the Interior Department slipping around through the back door and using a continuing fund which this Congress approved for the purpose of emergencies only and for purchasing such power as was necessary to insure constant service whenever there was a breakdown from other companies, and not enter into a contract which would purchase power over a period of 20, 30, or 40 years. I think we had better spell out exactly what we mean.

The use of these unauthorized, essentially amoral techniques can only be justified upon the theory that certain agencies of the government are waging war upon an important segment of the American economy and that, accordingly, any means, however devious, which accomplish the desired result, are appropriate in the circumstances. As Judge Charles E. Wyzanski, Jr., has written in a quite different connection,[6] the use of such techniques "cannot be defended unless we are prepared to accept the most subversive of all theories—that the end justifies the means."

Common Ground

Testifying in the pending Arkansas case, Congressman Boyd Tackett of that state made this observation:

> I am confident that there is a common ground upon which public power, produced under a program to make our resource development projects self-sustaining, and private power, produced by our taxpaying electric utilities, financed by investments of our people, can walk hand in hand. This meeting ground concerning hydroelectric power produced at Federal flood control projects lies in a feasible method of selling such power to existing public and private agencies at wholesale rates for distribution to the consuming public at the cheapest possible rate.

Basing my opinion on the almost agonizing efforts of public utility executives to cooperate with Federal agencies, I am certain that the vast majority of those responsible for the direction of the investor-owned electric utility industry would accept Congressman Tackett's statement that there *is* common ground upon which they and the Federal agencies can best serve the over-all national interest. What Congressmen Tackett proposes represents fair and decent treatment. I am sanguine enough to believe that we shall get that decent treatment, either now or, as the nation's enlightenment continues, beginning January, 1953!

[4] *House Rep.* No. 339, 82nd Congress, 1st Session, p. 3.

[5] Hearings before Subcommittee of the Committee on Appropriations, House of Representatives, 82nd Congress, 1st Session, p. 1754.

[6] *Atlantic Monthly*, May, 1951, Vol. 187, No. 5, p. 30.

Aids for Reduction of Summertime Accidents

IN an effort to reduce the summertime accident toll of linemen in the electric light and power industry, an effective series of posters and leaflets has been prepared by the Accident Prevention Committee and is now available for distribution. This material has been designed as a summer "package" dealing with six subjects that call attention to safety practices which can eliminate risks from linemen's work. For each subject there are three items: an attractive poster, a letter addressed to crew leaders, and a pocket-size leaflet for linemen.

The six posters are available only in 8½ by 11-inch size. The crew leader letters discuss the responsibility of the job supervisor for the safety of the crew, with particular attention to the practices portrayed by the posters. The leaflets are intended for distribution to linemen and emphasize safety precautions suggested by the posters.

In addition, a new sound slide film entitled "Paths of Least Resistance," based on material prepared by the Wisconsin Public Service Co., is available. This film illustrates the use of protective grounding equipment on overhead lines and also calls attention to the importance of accidental grounds in providing part of the path for current in electrical accidents. The record disc and film strip can be obtained at a price of $15.00 from Alfred L. Dowden, supervisor, public utilities, Liberty Mutual Insurance Companies, 175 Berkeley Street, Boston 17, Mass.

Designing the Farmstead for Electrification

By Professor F. W. Duffee

Chairman, Department of Agricultural Engineering, The University of Wisconsin

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 5, 1951

MY neighbor on an Indiana farm bought an automobile about 1908. This automobile had high, buggy-type wheels and an engine under the front seat. In my opinion farmstead mechanization, or farm electrification, is today comparable to that high-wheeled auto my neighbor bought in 1908.

I hasten to say most emphatically that this is not in any way the fault of the electric power industry or anyone else. The real demand for farmstead mechanization did not appear until during World War II; it slacked off a little after the war, but the demand is here again. Doing livestock chores is the bottleneck on livestock farms today, as I shall show. Mechanizing these chores is one of the big jobs ahead for American agriculture.

Electricity has brought an excellent source of light to the farm and this saves time; further, it has made possible the many household conveniences of the modern farm home, but it has not been used to any very great extent to mechanize the farmstead apart from the farm home, and this is our topic today.

That automobile my neighbor bought in 1908 had an engine, rubber-tired wheels, a chassis, a body, two seats, and provision for steering—so do 1951 models. Fundamentally then, these two models are the same, but actually they are as different as day is from night.

Remodel the Entire Structure

Farm electrification up to date has consisted largely of substituting electric motors for gasoline engines, hanging a few light bulbs instead of lanterns about the place and using a few heating units.

In other words, we have done about what that early auto maker did when he removed the shafts from the buggy and put an engine under the seat. Of course, the electric motors, light bulbs, and heaters we have today are in themselves splendid units. I am referring to the application of these units.

What we need to do in order to make farm electrification the effective servant of agriculture which it should be is to remodel the entire structure—that is, the entire farmstead layout, together with the equipment and devices in and around the buildings—just as the automotive engineers changed the auto.

PROF. F. W. DUFFEE

I shall present data to show that the tractor has brought about profound changes in agriculture, and I do this to give you an idea of what electrification can and I believe will do in the near future.

When I was on that Indiana farm 40 years ago, it was considered a fair day's work to plow two acres. Today many, many farmers have equipment with which they can plow two acres per hour, and some exceed this. I cultivated six acres of corn a day in 1908; today many farmers cultivate 60 acres a day.

Two men with a two-row corn picker can husk and crib as much corn in a day as 16 men can by hand. These few illustrations are examples of what has happened to field work, or crop production, on American farms. I suppose, as an average, one man now does about what three men did 40 years ago.

There is now nearly one tractor for every farm in the United States and in my home state of Wisconsin, slightly more than one tractor per farm.

During the last 20 years the tractor has been equipped with rubber tires, speeded up, and a very full and complete line of equipment to do every field operation has been developed. Further, this equipment is now in the hands of most of the commercial farmers.

Tractors on American farms increased as follows since 1910:

TRACTORS ON U. S. FARMS

Year	Total Number of Tractors
1910	10,000
1920	246,000
1930	920,000
1940	1,567,000
1950	4,002,000

NOTE: 1910, 1920, and 1930 data from "Changes in Farm Power and Equipment," National Research Project, WPA. 1940 data from *Farm Implement News*, October 2, 1941. 1950 data from *Farm Implement News*, July 10, 1950.

Cotton picking, which is a major operation for a large segment of the farm population, has been one of the most difficult jobs to mechanize, but this has been done.

Let us see what has been the impact upon agriculture of this mechanization which permits one man to do the work of three.

Decrease in Farm Population

In 1920 the total population of the United States was 91,972,000 and the farm population was 32,077,000 or nearly 35 per cent of the total. In 1949 the total population had increased from 91,972,000 to an estimated 147,500,000, while the farm population had dropped from a little over 32,000,000 to 27,776,000 or only 18.8 per cent of the total.

In other words, we have just a little over half as many farmers in proportion to the total population as we did 40 years ago. This great relative decrease in farm population is almost entirely due to the tractor.

Our total agricultural production has increased approximately 40 per cent during the last 15 years, even in the face of a reduced number of workers, and this is in part due to the tractor, other factors being better seed, greater use of fertilizer, and better agricultural technology in general.

This greatly increased output per

FARM POPULATION AND TOTAL POPULATION OF U. S.
TAKEN FROM STATISTICAL ABSTRACTS OF U. S., 1950

Year	Total Population	Farm Population	Farm Population % of Total
1910	91,972,000	32,077,000	34.9%
1929	105,711,000	31,646,000	29.9
1930	122,775,000	30,169,000	24.6
1940	131,669,000	30,269,000	23.0
1949 Est.	147,500,000	27,776,000	18.8

worker is largely responsible for the improved individual farmer income which has permitted him to buy autos, radios, pay his share of better highways, and enabled him to modernize his home with running water, bath, modern kitchens, and all the labor-saving conveniences in the home which the blessing of electricity has brought him. Note that I referred here to the home only. We will expand upon this later.

Livestock Chore Work

However, when we examine livestock chore work, which is the field of farm electrification, we find no such progress as in the field work or crop production.

Livestock chores account for over 55 per cent of all the farm labor in my home state of Wisconsin, where dairy farming is the major farm enterprise. About 25 per cent is used for crop production and 20 per cent for miscellaneous chores, such as repairing buildings, fences and machinery, business trips to town, etc. On some farms as much as 65 per cent to 70 per cent of the labor is used for livestock chores.

A 1947 survey conducted in a grain-growing area of Illinois revealed that even with this type of farming, 36 per cent of the farm labor was used for livestock chores and only 33 per cent for crop production. The balance of 31 per cent is used for miscellaneous chores.

Cornell University reports that specialized dairymen in New York State spend 58 per cent of their time on livestock chores.

The few early records available, together with the judgment of experienced farm management people, indicate that it takes about the same number of man-hours to produce 100 lb of milk today as it did 40 years ago. Some savings have been made, notably the extensive use of milking machines and so-called "fast milking." However, these savings have been largely offset by the extra care required to produce higher quality milk.

Data from several Agricultural Experiment Stations indicate that it takes an average of about 130 man-hours per year to care for a cow. However, the variation ranges from about 50 to over 200 man-hours per cow per year.

A noted authority on farm electrification recently stated that he had a list of over 400 uses of electricity in agriculture, but that only eight or ten had been sold on a substantial commercial basis. I raise the question: why are these other applications not being sold?

A 1938 survey of two groups of good representative dairy farms in Wisconsin showed the following:

Group 1—28 farms

- Average connected load — 3.86 kw
- Maximum line demand (37 farms) —16.8 kw
- Average maximum demand per customer — 0.45 kw
- Lights—29.1 per cent of total connected load
- Lights and house—88.3 per cent of total connected load
- Barn—11.7 per cent of total connected load

Group 2—55 farms

- Average connected load — 8.02 kw
- Maximum line demand (55 farms) —50.8 kw
- Average maximum demand per customer — 0.92 kw
- Lights—17 per cent of total connected load
- Lights and house—90 per cent of total connected load
- Barn—10 per cent of total connected load

From this data taken in 1938 we observe that only about 10 per cent to 12 per cent of the total connected load is barn work or farm electrification. Most of the load, 88 per cent to 90 per cent, represents lights and household appliances.

I had hoped to present current data for dairy farming relative to the connected load used for barn work, but unfortunately these data are not ready. We are, however, of the opinion that not over 25 per cent of the connected load is represented by farm electrification equipment.

I submit that the above information substantiates my statement that farmstead mechanization, which to a very large degree is farm electrification, is still in the very early stages of development.

In order to make a thorough study of farmstead electrification, the Wisconsin Electric Research Farm was established in 1946 by the Agricultural Experiment Station of the University of Wisconsin with funds supplied by the Wisconsin Utilities Association. I want to take this opportunity of expressing our deep appreciation for the splendid cooperation which the representatives of the Wisconsin Utilities have given us on this project, and especially I wish to thank G. C. Neff for the leadership he has given to the promotion of this electric research farm.

The object of this electric research farm is to find better ways of applying electric service to the dairy farmstead. It is not enough on this electric research farm to merely install a lot of standard electrical equipment in a set of standard farm buildings. This has been done and is being done by thousands of dairy farmers, but here we are trying to find out whether changes in equipment or changes in building design and arrangement will work still better.

In other words, we are trying to find out whether we can redesign the farmstead and thus secure better farm electrification, just as the 1908 auto has been redesigned to give the fine car of today.

Proven Changes

We have already found and proved some such changes. For example, cow trainers, which are electrically operated devices to train cows to keep their stalls clean, work well in stalls of conventional length but when used in extra long stalls they practically eliminate the necessity of cleaning cows at all, except, of course, for washing the udders at milking time. Longer stalls also tend to reduce leg and udder injury.

The barn cleaner works well and saves labor as installed in a standard barn, but when a barn cleaner is used, the center alley may be narrower and the saving in space can be used for longer stalls and wider feed alleys. New barns may be somewhat narrower when a barn cleaner and narrow center alley are used, which will mean some saving in barn costs.

Incidentally, these long stalls and narrow center alley are the first major changes in stanchion-type dairy barn planning in the last 40 or 50 years.

Another new feature is that the low-cost shed for housing young stock and dry cows is designed so that the feeding area can be cleaned directly into the barn cleaner. Likewise the manure in the calf pens and maternity pens is removed by the barn cleaner.

These examples of the long stalls, narrow center alley, and cleaning the shed and the calf pens with the barn cleaner illustrate the idea of redesigning buildings to use electricity better.

Many farmers in northern regions now keep a team of horses primarily for the purpose of hauling out manure in the winter, when temperatures are extremely low or when snow is too deep for tractors to operate satisfactorily. At the electric farm we have extended the barn cleaner to a manure dump. Thus in the winter time almost the entire job of removing manure from the barn is accomplished by flipping a switch. In the spring the manure is easily and rapidly loaded into the manure spreader with a tractor-mounted manure loader.

Effective Farm Electrification

At this point I should like to emphasize most emphatically that effective farm electrification goes far beyond electrifying a few jobs on the farm. Effective farm electrification means:

1. Farmstead planning or the proper location of buildings.
2. Good arrangement in the buildings, so as to shorten chore routes and integrate the various chores in order to reduce lost time.
3. The elimination of jobs where possible. The cow trainer with long stalls has almost entirely eliminated the job of cleaning cows.
4. The electrical mechanization of jobs in so far as possible.

We like to think of farm electrification as the red thread that runs through the woof and warp of planning the entire farmstead. The electrical equipment is so well integrated into this farmstead that one visitor made the remark that he "didn't see much electrical equipment on this farm," and yet we have nearly 100 kilowatts of connected load on this 24-cow dairy farm.

A good, well-equipped and heated shop provides a place to care for the machinery. Here greasing, adjusting, and repairing can be done cheaply, easily, and quickly.

In the hog house one farrowing pen is experimentally equipped with soil heating cable laid in one corner of the concrete floor, the corner where the little pigs are. A heat lamp hung 30 inches above this heated floor section insures that the pigs are kept warm all over, and the floor is kept dry. In the other farrowing pens heat lamps are used to keep the little pigs warm.

The so-called Minnesota system of swine management is used. It consists of a permanent central hog house, with three or four rotation pasture plots adjacent to the hog house. Concrete sidewalks lead to each pasture plot, so as to provide sanitation and freedom from internal parasites. This system is extremely convenient and seems to be well adapted to dairy farms in northern regions, and the central hog house is well adapted to permanent electrical installations.

The feed plant at the Wisconsin Electric Research Farm provides for storing the farm-grown grains and corn, grinding these feeds, and mixing them with the correct amount of salt, mineral, bran, and concentrate to provide a balanced ration. The corn bin is constructed so as to make it easy to dry the ear corn artificially, and thus eliminate the losses due to storing damp corn. The storage capacity can be of almost any desired amount as needed. At the electric farm, storage capacity is provided for 3,100 bushels of grain and 1,600 bushels of ear corn.

Plant Features

The plant has the following features:

1. Convenience—no hand handling of grain or corn at any time from harvest to feeding. Saves the time ordinarily required to handle grain.
2. Grinding and mixing is semi-automatic by merely flipping the switches to start and stop the equipment.
3. The entire plant is designed for prefabrication, so it can be manufactured and sold as a complete unit. Most of the equipment is presently in production.
4. All storage units for grain and corn are prefabricated, round metal bins.
5. The grain storage bins rest on cheap concrete block foundations and the metal floor rests directly on the ground, which means low cost installation.
6. The corn bin is equipped with a slatted floor about 2½ feet above the ground so that the corn can be dried with a crop drier.

The total cost of grinding and mixing the dairy ration is 1.1 cents per 100 pounds with electricity at 2½ cents per kwhr. Custom mills are charging 10 to 15 cents per 100 pounds.

A rather complete description of this feed plant was published in the April, 1950, issue of the *Country Gentleman*.

Here again is an example of designing the farmstead to efficiently use electricity, and it is infinitely more than putting an electric motor on a feed grinder. You will be interested in knowing that one large manufacturer has already indicated an interest in developing this entire unit for commercial production.

The 84-year-old farm house was remodeled and completely modernized. In the kitchen will be found an electric range, dishwasher, refrigerator, roaster, food mixer, milk pasteurizer, knife sharpener, clock, and ventilating fan, and in the utility room are a freezer, automatic clothes washer, clothes drier, ironing machine, small electric range, two-compartment sink, and cabinets for the equipment used in canning and freezing the foods produced on the farm.

Distribution of Connected Load

The total connected load in this slightly above average size Wisconsin dairy farm is 96.57 kw, distributed as below:

House	44.65 kw
Barn	16.8 kw
Feed Processing Unit	18.29 kw
Shop	9.35 kw
Milk House	3.58 kw
Hog and Poultry House	2.1 kw
Miscellaneous	1.8 kw
Total	96.57 kw

NOTE: From Master's thesis of Peter F. Dens, June, 1950.

The consumption of kilowatthours per month is tabulated on the following page. For the first five months of 1950 heating water for the house and milk house accounted for about one-third of the total.

The farm used 44,800 kilowatthours in 1950, which would cost $900 to $1,200 at Wisconsin farm rates. What did the farmer get in return for this expenditure?

The planning, remodeling, and building on the electric research farm has

CONSUMPTION OF ENERGY
AT
THE WISCONSIN ELECTRIC RESEARCH FARM

	Kilowatthours		
	1948	1949	1950
January	1,834	3,488	3,678
February	2,866	3,484	3,928
March	3,066	3,572	4,506
April	2,510	3,452	4,134
May	1,896	3,200	3,468
June	2,384	3,874	2,780
July	4,198	4,888	5,568
August	2,466	4,016	2,562
September	1,852	2,408	4,578
October	1,980	2,650	2,612
November	2,536	3,618	2,930
December	3,296	4,378	4,060
Total	30,884	43,028	44,804

taken most of the time for the first four years, and we are just now studying the over-all efficiency of the farmstead, so I cannot report on this as yet. However, I can give you the results secured with certain operations.

Operation Results

The silo unloader reduced the time of getting down silage for this 24-cow herd from about ten minutes to about ten seconds, as compared to climbing the silo and throwing down the silage with a fork.

Feeding silage to the cows with a new type dispensing cart, as compared to the conventional cart and fork method, reduced the time from about 14 minutes to about ten minutes.

Cleaning the barn with a barn cleaner, as compared to driving through the barn with the manure spreader reduced the time from 22 minutes to a little over five minutes. One farmer reports that when he put in a silo unloader and barn cleaner for his 60-cow herd he could dispose of one hired man. Cleaning cows has been almost entirely eliminated.

Water is piped under pressure to the cows, hogs, and chickens to eliminate all carrying of water by hand. Inexpensive electrical equipment is provided where needed to prevent freezing in cold weather. There is very little hand handling of feed.

There is no moving of portable hog houses. The electrical equipment in the central hog house is always ready for operation. All that is needed to change the hogs from one pasture to another is to open one gate and close another, jobs done once a year.

Artificial lighting in the laying house increases egg production, when egg prices are highest.

The shop, with its arc welder, portable electric drill, post drill, saw and jointer, air compressor, tool grinder, and supply of bolts and machinery repair parts, makes it easy to keep all machinery in efficient working condition all the time.

The electrically operated milking machine, together with "fast milking" which requires the use of hot water, reduces milking time. The milk house with its milk cooler helps secure a premium price for milk. The water heater, connected to an "off peak" meter, with washing vats provides the main essentials for keeping milking utensils clean, which are necessary to get the premium price for milk.

The water heater also provides the hot water necessary for "fast milking," and the side arm heater on the water heater provides cheap, safe heat for the milk house. The milkers are likely to shirk the important job of washing the milking utensils if the milk house is too cold. The watering cups for the cows are a must for high milk production and the heated drinking cup, thermostatically controlled, in the young stock shed keeps them supplied with water.

The heat lamps used for brooding pigs will save an average of one pig per litter in cold weather.

The feed plant saves a substantial amount of cash outlay for feed grinding and mixing, as well as the handling, and in many cases the time and expense involved in hauling the feed to the custom mill.

In some cases electrical equipment may not save time but it does lighten the work. Electric fences provide a cheap, easy way of fencing rotation pastures, important to grass-land farming. This bill for electricity also includes the current for all the comforts, labor-saving conveniences, and food storage equipment for the modern farm home.

Wisconsin Farm Consumption

The average annual consumption on Wisconsin farms was about 4,000 kilowatthours in 1950. The consumption on the electric research farm was 44,800 kilowatthours, or 11 times as much as the present average. The monthly consumption varied from about 2,500 to 5,500 with a maximum recorded demand of 24 kilowatts for 15 minutes. However, the load seldom exceeds 17 kilowatts, for a connected load of 96.5 kilowatts. Records taken for the first five months of 1950 indicate that the load is quite constant from 7:00 a.m. until 7:00 or 8:00 p.m.

Now, of course, I don't mean to suggest that we can expect a large percentage of the farms in the country to approach this use in the next two or three years. But I do believe that we can look forward to very substantial increases in the next ten years, particularly so if we offer the farmer a sound solution to his farm mechanization problem.

I stated earlier that farmstead mechanization or farm electrification is one of the next big developments in agriculture. The reasons for this are: field crop mechanization is now reasonably complete, farm help is high-priced and scarce, and much of the farm help now available is unreliable. Thus, farmers are conscious now, as never before, of the need for mechanizing livestock chores. Further, farm prices are good, so that money is available for purchasing equipment.

Suggestions to the Industry

I should like now to make a few suggestions as to what the electric power industry can do to help solve this farmstead mechanization problem.

The enthusiastic support which Wisconsin utilities continue to give our research program indicates its value to them and their recognition that its value will increase as years go by. To meet the problems that arise in other sections under typically different conditions, state or regional organizations of the electrical industry might well cooperate with their experiment stations in setting up and sponsoring similar studies. They could hardly render a more far-sighted and progressive service to their farm customers and in the long run they should be well-repaid in the extended use of power.

At the same time our agricultural colleges and especially our extension people have a big responsibility for getting the practical results of research out to the people who can use them. Some of the principles evolved are basic. They apply with similar force in many regions, and the extension problem is common to all. It is simply a question of getting the facts out of the files and onto the farm.

Strong utility support, alert questioning, research unhampered by tradition, and aggressive extension to popularize

(*Continued on page* 255)

The Defense Power Program

By C. B. McManus

Administrator, Defense Electric Power Administration

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 6, 1951

IT is a real pleasure for me to speak to you today. You have no idea how good it is to get away from Washington for a few days. Washington can be rugged at times, and I believe if you stay there too long without getting out to see what the rest of the country is doing, you are apt to lose your perspective.

Today I want to talk with you about the Defense Electric Power Administration because we will need the support of every one of you to do our job effectively.

I believe that DEPA will play an increasingly important role in your business life over the next year because control over critical materials will in my opinion become tighter and tighter.

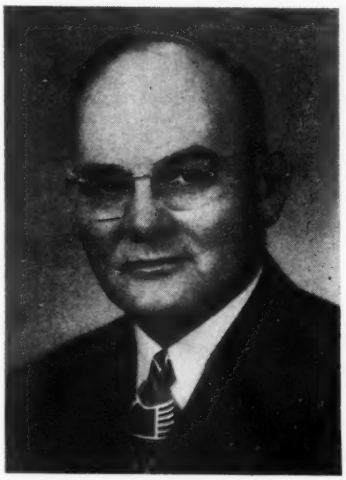
We have avoided all unnecessary controls to date because we do not believe in controls just for the sake of controlling. We have tried to keep paper work at an absolute minimum, which is no small job.

Job of Analyzing and Appraising

Basically, our job in DEPA is to analyze and to appraise the power expansion program of the country and to determine whether or not power will be available when and where it is needed. Having analyzed and appraised the power program, we then endeavor to secure sufficient materials so that the program can be completed on time. It is our further responsibility to provide the necessary incentives so that the program will not be held up by the risks involved in the expansion.

In April, 1950, before Korea, approximately 17 million kilowatts of additional generating capacity were scheduled for the three years 1950, 51, and 52. By using this pre-Korean three-year program as a base, we can get an approximation of the total impact of the defense program.

In April, 1951, approximately 27 million kilowatts were scheduled for the three years 1951, 52, and 53. The expansion was 17 million kilowatts before Korea and 27 million kilowatts after Korea. This means that approximately 10 million kilowatts of additional generating capacity have been scheduled in 1951, 52, and 53 over and above normal expansion as a result of the defense program.



C. B. McManus

In the three years 1948, 49, and 50 approximately 17½ million kilowatts of additional generating capacity were added in this country by all groups contributing to the public supply. The 27 million kilowatts for 1951, 52, and 53 are a 40 per cent increase over the approximately 68 million kilowatts installed at the end of 1950.

Outstripping Pre-Korea Plans

We now expect to have by the end of 1951 the same total load in this country that a year ago we expected to have by 1953. And by 1953, we expect to have at least 12 million kilowatts more than we expected in our planning before Korea.

Ten years ago, before World War II began, we had reserve margins of approximately 20 per cent. By 1950, the reserve had shrunk to 6 per cent.

According to the records which we have, the electric utilities never spent as much as a billion dollars a year on expansion until 1947, but in the years 1948, 49, and 50, total construction expenditures averaged more than 2½ billion dollars a year. When the war in Korea started and the nation demanded more power, those expenditures really paid off. The program which is now planned must be carried through with equal vigor and determination.

We appraise the power supply situation on a regional basis. At the present time, we are concerned about the states of Washington and Oregon and about the Southeast Region.

The power supply situation in Washington and Oregon is critical and will remain so at least through 1953.

Steps to Remedy Power Shortages

Recognizing the seriousness of this situation, DEPA has recommended 631,000 kilowatts of additional capacity for these two states to the Federal Power Commission for licensing. These projects have been licensed and are under construction. We have taken steps to advance the construction of two other projects totaling 330,000 kilowatts. DEPA has recommended proceeding immediately with the construction of a large capacity tie between California and Oregon. We have recommended two other hydroelectric projects totaling 580,000 kilowatts. These projects could be constructed and put into operation during 1953, but unfortunately, they involve major conflicts with the fishing industry and have not as yet been approved.

In the Southeast Region, the new defense loads planned are greater than in any other region. At the end of 1951, even with power being brought in from the north, the situation will be somewhat critical, particularly if we have poor water conditions. If present construction schedules can be maintained, the expectation is that enough additional capacity will be added to make this region self-sufficient from the middle of 1952 through 1953.

The information which we have at the present time on the other power regions of this country indicates that re-

serves will be available through 1953 of an amount sufficient to prevent a critical power supply situation, provided new capacity can be added as scheduled.

Keeping the power program on schedule should be, and I think will be, the greatest concern for all of us over the next few years. The greatest single factor will be the availability of materials.

Metal Allotments

The allotments of aluminum, copper, and steel have recently been made for the third quarter of this year. The Engine and Turbine Division and the Electrical Division of NPA receive the allotments for the manufacturers of major power equipment. DEPA receives the allotments for the direct needs of electric utilities. The third quarter allotments are substantially below the quantities requested by both the NPA Divisions and DEPA.

Three of the manufacturers of major power equipment have told us what will happen as a result of the sharp cuts in materials for the third quarter.

Concerning turbines, the lost production is estimated to be 400,000 kilowatts for one company and 300,000 kilowatts for another. The third manufacturer will be short 64 per cent on materials.

On transformers, shipments by one company will be delayed from one to 14 months starting in August, 1951. Another will have to operate at half capacity, and the third will be short 42 per cent on materials.

For switchgear, delays in deliveries for one company will start in July of this year and will range from two to 12 months. Delays for another company will start in August and will be from one to 13 months. The third manufacturer reports a deficiency of 28 per cent in materials requested for switchgear.

Delayed "Start-Up" Dates

The delays in switchgear and transformers caused by these material cuts will interfere with scheduled "start-up" dates for some generators which were to be delivered in the months immediately ahead.

Providing materials for the manufacturers of major power equipment is the job of the engine and turbine division and the electrical division of NPA, but it is DEPA's job to document the entire power program so that they can get the materials they need.

Both DEPA and the two divisions in NPA are insisting that the power program must be maintained on schedule, that to let it slip would interfere with essential defense production. The materials needed for scheduled production of equipment in the third quarter of 1951 must somehow be obtained.

For the direct requirements of electric utilities, DEPA has received 25 million pounds of aluminum for the third quarter, compared with 49 million pounds for the second quarter. Our copper allotment is 75 million pounds for the third quarter, compared with 92 million pounds in the second quarter. Our steel allotment is 90,000 tons a month, which is the same we received for May and June.

We are proceeding with the allocation of these allotments on the basis of urgency, but in the meantime we are doubling our efforts to so document our program that we will receive additional materials.

Using Priority Assistance Promptly

One of the things which has handicapped us in getting sufficient materials for the third quarter is the slowness with which utilities applied defense orders in the second quarter. Because these defense orders did not reach the mills as quickly as they might have, the assumption was made in Washington that the utilities did not need all of the material they had asked for. This was not true, but it indicates the need for using priority assistance promptly.

I particularly want to emphasize that third quarter orders should not be held up waiting for the Controlled Materials Plan.

We hope that by July 1 or shortly thereafter, we will be under CMP. This should provide some definite advantages. We expect that all material allotments made to us under CMP will be, in effect, certified checks with materials specifically set aside for our needs. We also expect to have advance allotments so that projects can be approved to use materials beyond a single quarter. In addition, we expect to have ratings which can be used to get the essential equipment and materials to go with the copper, aluminum, and steel allocated.

Our fourth quarter material requests will be submitted on June 20. All fourth quarter projects should be submitted to DEPA prior to that date.

I would now like to comment on another major part of DEPA's activities: namely, tax amortization. There has been some delay in developing the basis for recommending percentages for necessity certificates for electric power facilities. Numerous conferences have been held with the Defense Production Administration, and we believe that we now have a working basis which will mean that action should soon be taken on the requests which we have received. As of the end of May, we had approximately 200 applications for a total of nearly one and a half billion dollars.

Tax Amortization

The certificates which have been granted in other industries have permitted amortization on an accelerated basis in amounts ranging frequently from 60 to 80 per cent of the actual cost of the project. We expect that the percentages granted the electric utility industry will be lower because of the consistent load growth of our industry.

I would now like to give you a few facts about the DEPA organization. I have two deputies: James Fairman, vice president of Consolidated Edison Co. of New York and former president of AIEE, and Ken G. Whitaker of the Electric Power Board of Chattanooga. Out of our total staff of 130 people, 28 are from privately-owned electric utilities and 11 from municipal, Federal, and REA. In addition, we have people who have come to us from the Federal Power Commission, Securities and Exchange Commission, Department of the Interior, Bureau of the Budget, Army, and Navy.

I am very grateful to the companies which have contributed so generously of their valuable personnel.

There are two special points which I would now like to call to your attention. The first is the necessity for all of us to have the over-all view of the defense program, and the second is the responsibility which all of us have to represent adequately the electric power industry in this country.

Unwise to Undersell or Oversell

The two ideas are closely connected. We do not want to undersell or oversell our industry. We do not want to secure too much, use unwisely, or get too soon, the critical materials on which our defense effort depends. Neither do we want to fall down on the specific job which has been assigned to us in the defense program: namely, to have power ready when and where it is needed.

I am a member of the requirements committee of the Defense Production

Administration, and I know that it is a real problem to find enough material to carry on the essential defense programs and at the same time maintain the civilian economy at a satisfactory level. In addition, there are the problems of keeping small business concerns going, preventing area unemployment, and maintaining labor forces capable of taking on major defense contracts.

In the third quarter, we estimate that the direct requirements of the electric utilities and the requirements for major power equipment will total about 10 per cent of the country's supply of aluminum, 14 per cent of the copper, and 3 per cent of the steel.

The aluminum industry is undergoing an expansion which by the end of 1952 will add roughly 60 per cent to the capacity existing in June, 1950. Current plans for the steel industry call for a capacity of 117 million tons by early 1953. This is 22 million tons more than at the peak of World War II. Plans for the expansion of copper supply are directed at boosting production in foreign countries and, where possible, opening new deposits in the United States.

It is our individual responsibility to organize our activities so that as much time as possible will be allowed for these increases in the production of critical materials to take place. This means postpone all unnecessary projects, effect all possible economies in design and installation, and closely coordinate construction with actual load conditions.

The generating program is the heart of the entire power expansion. Every effort will have to be made to reduce other uses of material so that the major power equipment program can go through on schedule.

It will be a serious mistake for us to assume that everyone appreciates the importance of electric power in the defense effort. We in DEPA have been telling the story of our industry to people who occupy the highest positions in the defense agencies in Washington. We have pointed out that in 1944, at the peak of World War II, the gross national product in this country was nearly 300 billion dollars. Last year, the gross national product was again nearly 300 billion dollars, but the kilowatthours required had increased by 43 per cent.

We have emphasized that in 1944, the average worker in American industry used approximately five kilowatthours for every man-hour. But last year, he used nearly seven kilowatthours for every man-hour, an increase of 40 per cent. We have told them that the average home in America used 1151 kilowatthours in 1944, but last year the average home used 1830 kilowatthours, a gain of 60 per cent.

We have told this story because we want all defense officials to fully understand how much more important electric power is in this country today than it was in World War II.

We have also told them facts about our industry that all of you know: namely, that we need two to three years to get generating equipment installed, that we do not deliberately overexpand, and that we follow load development on an individual service area basis and take the necessary steps to make sure that power is available.

We have particularly emphasized that rationing electricity for any extended period of time can only be accomplished by curtailing industrial production. We have stated that brown-outs are psychological and result in no worthwhile saving. We have not recommended nationwide daylight-saving time because the saving is small and unevenly divided across the country.

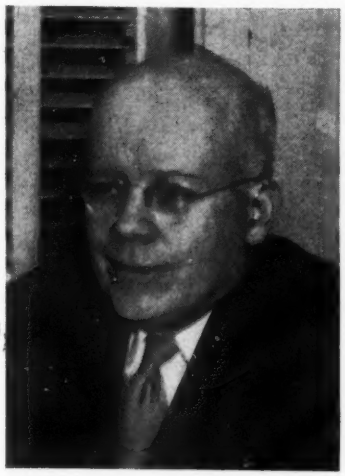
These top people in Washington have told us that they have only so much material, that all industries consider themselves important, and that their job is to work out the maximum coordination so that we will not have in this country plants finished and ready to run, with no power to supply them—nor should we have electric power plants ready to run without loads ready to be served.

We in DEPA will have the front-line job of adequately presenting the electric power story to the other defense agencies, but each of you has the responsibility of keeping the people you know and the community you serve informed on the vital need of electric power in this defense effort and of the steps that are being taken to meet that need.

We are headed into a period when materials, equipment, and tempers are going to be short. We will need to be long on performance, productivity, and public relations.

Charles E. Neil

CHARLES E. NEIL, whose recent appointment as assistant to the president of The North American Co., was recorded in last month's BULLETIN,



CHARLES E. NEIL

died suddenly on June 16 in the office of a New York dentist a few minutes after the extraction of a tooth. He was 62.

Mr. Neil was buried in Denver on June 20, and a memorial service was held on the same date in New York to coincide with the funeral service in Denver.

A daughter, Miss Dorothy Neil and two sisters, Mrs. Louise N. Tasher and Mrs. Theodore L. Rudmann, survive.

A man of rare culture and discriminating taste, Mr. Neil's main interests outside of his professional life were literature and music. For more than 25 years he served the industry as a member of the Rate Research Committee of the EEI and its predecessor, NELA. For eleven years of this period he was Secretary of the committee.

Widely recognized as an authority on electric rates, Mr. Neil also had extraordinary knowledge of the legal, economic, and historical aspects of the industry, and his counsel and experience in these matters could be always freely, and frequently were, drawn upon by his associates. Selfless by nature, Ted Neil made numerous unheralded and uncredited contributions to the welfare and progress of the industry he served so long.

A man who genuinely delighted more in giving than in receiving, he earned and holds the affection of those who knew him.

The Report on Water Resources Policy

By Hon. Leslie A. Miller

Former Governor of Wyoming

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 6, 1951

IT is traditional that history has a way of repeating itself, and it is in keeping with tradition then that your attention be called to something which is going on at the direction of a governmental agency only about 30 or 40 miles from where you are sitting today. The bit of history to which I would refer at the outset is from a very ancient work of literature, the History of Herodotus, written some 450 years before Christ. At one point the historian gives us these words:

> There is a plain in Asia encompassed on every side with a ridge of hills, opening into five several passages. This country was formerly in the possession of the Chorasmians, inhabiting the mountains; and of the Hyrcanians, Parthians, Sarangeans and Thomanians; but since the establishment of the Persian power, belongs to the King. A great river, known by the name of Aces, flows from these hills, and in times past watered the territories of the nations before mentioned. But these people have suffered much since they were reducd under the dominion of the Persians. For the King caused the apertures to be so effectually stopped that the river, finding no passage out, was enclosed within the hills as in a basin; and the people, who before had been supplied with those waters, being deprived of a thing so necessary were reduced to great extremities. For though, as other countries, they have rain in winter; yet in summer, when they sow panicum and sesamus, they stand in need of a farther supply of water; and therefore finding themselves totally excluded from the benefit of the river they went with their wives to the King's palace howling, and making loud exclamations before the gates: upon which the King gave orders that the passages should be opened towards those lands that were in the most pressing want, and shut up again when they were sufficiently watered; and afterwards to do the like to the rest, in such order as should be found necessary. But this, as I am well informed, was only a contrivance to extort great sums of money besides the usual tribute.

HON. LESLIE A. MILLER

Now, for the historic repetition: the South Platte River flows through Denver and waters a highly productive acreage of farm land in the area surrounding the thriving communities of Brush and Fort Morgan. The irrigated acres are admittedly some of the very best lands in Colorado.

History Repeats Itself

Some 15 years ago, a cloudburst struck the area south and west of Brush and caused great temporary damage and some loss of life. Statisticians aver that such a fall of water would, in all probability, not happen to the same locality again in less than 500 years. Whether this is logical or otherwise, the situation was one of those made-to-order things to interest the very active minds of those in the Corps of Engineers who plan flood control work. They sought for and found, at a place called "The Narrows," a site for a flood control dam. In the deal between the Corps and the Bureau of Reclamation for development of the Missouri Basin, this project was taken over by the Bureau and labelled an irrigation scheme.

If the Narrows Dam is built, it will provide a reservoir, which will cover up some 6,000 acres of producing farm land. It will inundate two villages, cover up two existing irrigation works, and require the relocation of about 30 miles of Union Pacific trackage. It will remove the lands taken over for the reservoir from the taxrolls of the county and the state. The county would suffer great losses of revenue.

At this point, it would be well to direct attention to the fact that the very rich and productive area to be put out of existence was established by private enterprise. The Federal government was not involved or responsible. What is now proposed is that this beautiful part of the valley be destroyed and the water impounded used to irrigate other lands quite some miles below in a district where, those in a position to know tell me, the land is much inferior in character —that this is probable is borne out by the perfectly apparent fact that otherwise that land would have been developed first.

Now the newly developed irrigated area would be made into a district under the Bureau of Reclamation. The capital cost of the project would be financed by the Treasury using monies largely derived from taxation. The water users would be required to pay the upkeep of the works and for water to the extent they could afford it. If the payments for water would not return the capital costs, the unpaid portion would be charged to you and me as taxpayers. And so I repeat the last sentence of the quotation from Herodotus: "But this, as I am well informed, was only a contrivance to extort great sums of money besides the usual tribute."

You will appreciate, I am sure, the point of using the foregoing as an introduction to my talk here today. I was asked by your program committee to discuss some phases of the *Report of the President's Water Resources Policy Commission*. Doubtless many, probably most of you gentlemen, have read the summary of the report and some of the

numerous analyses which have been printed. In such circumstances it should not be necessary for me to be too wordy.

You know, for example, without my taking up too much time, that the fundamental proposal of the commission is that control of virtually all of the waters of the land be taken over by authorities to be set up by the Congress, agencies which would, in most essentials, follow the pattern of TVA. They would operate by major river drainage basins and would be vested with vast powers over water development in particular and over industrial development indirectly. Their prime objective would be the production of hydroelectric energy, and, should the plans be carried through in broad scope, these governmental units would act to impede the workings of our free enterprise system in a degree today unsuspected.

Permit me to give an example of the fears of this section of the country with regard to what could be expected to happen along one line. In most of the states of the arid West, the constitutions and the laws provide that the original ownership of the waters is vested in the state and can be appropriated to privately-owned lands by proper procedure. Once decreed by periods of use, the appropriation attaches to the land permanently and becomes an integral and, in most cases, a controlling factor in the values entering into a purchase or sale. The appropriator who is prior in time holds the prior right to use.

Irrigation Is Life

Now, here in most of the West, irrigation is life. Without water, farming would be restricted indeed. Assuming the institution of such powerful agencies as the commission would justify, what would be the position of the owners of water rights, appurtenant to irrigated lands? With the prime objective of the agency being the production of power from falling water, it follows that the agency would, of sheer necessity, once industry dependent upon electric energy from such a source was established, have to control the flows of the rivers.

In a season of short water supply, it is folly to believe that the lip service given by the commission to regard for state laws would be of any consequence. It is contemplated that the use of power by industry will, in time, far outweigh the demands by agriculture, and if the use of water for irrigation is subservient to the production of power, then the water rights of the farmers will decrease in value progressively through the years.

It is stated in several places in the report that the development of water resources by the proposed regional agencies should be consistent with sound business principles. We can be forgiven if we smile at such naive remarks. It would be drawing excessively upon credulity, knowing what we do respecting the practices of governmental bureaus and departments, to imagine that because the commission says (we wonder if with tongue in cheek!) that water development authorities should be bound by good business principles, the admonition would be given more than desultory heed, if any at all.

Public Power in Nebraska

Here would be a consistent place, perhaps, to interject a few words about something we see abroad in Nebraska, a commonwealth where there are no longer any private concerns in the power generating and distributing business. They are finding over there that, even when ordinary business principles are not the rule in the operations of public power and the rates are influenced thereby on the down side, in many cases municipalities can produce energy by using Diesel engines fired by natural gas cheaper than they can purchase hydroelectric power. One of the principal cities, Holdredge, an original promoter of hydro and irrigation projects and located within a few miles of two hydro plants, is seriously considering cancelling its contract with the Nebraska Hydro system. More than 20 of the important communities of the state located within reach of the lines of the hydro districts find it in their interests to generate electric energy exclusively in fuel burning plants.

But conceding that, generally speaking, the potential hydro possibilities should be harnessed and put to beneficial use, it seems to me the taxpayers can find consistent fault with the thought of the Water Resources Policy Commission that all power sites should be developed by governmental agencies, the capital investments required to be financed by the Federal Treasury. Public thinking is being guided by propaganda into a belief that private enterprise will not or cannot build the plants to meet the demands for more and more power. The hard facts dispute such representations.

You know, of course, that as of today, the privately-owned hydroelectric plants of the country are producing much more energy than the Federal facilities. And we need to cite not more than two or three examples to establish that the privately-owned companies are greatly expanding their outputs in accordance with the free enterprise concept. Take Pacific Gas and Electric which is investing hundreds of millions in new plant capacity. Montana Power and Utah Power and Light are among the progressive companies doing likewise.

Many others would risk their capital in new hydro installations, if given only a little encouragement by government. Instead they are hampered and often blocked by an Interior Department all too evidently intent upon using Federal authority to gain control over practically all new hydro power development. And plans for more and more dams are being continuously pushed, despite the figures compiled by Government sources showing that power is, in many places, generated more cheaply and satisfactorily by modern steam plants powered by coal and natural gas than by water power.

I would not have my listeners believe that because disagreement is voiced here with the report under discussion in matters having to do with added governmental controls over power development that I condemn the report out of hand. Most certainly I do not. I heartily concur with the recommendations for basin-wide studies and programs, but I think more emphasis should have been placed on state and local authoritative cooperation.

Financing and Local Government

The suggestion that concrete participation by local governmental units in the financing of public projects be required, if carried into consistent effect, would be a powerful deterrent to unsound promotions. Moreover, the recommendations that the direct beneficiaries of Federally financed projects be required to reimburse the Treasury for capital advanced is sound thinking. Which leads me to voice a thought growing out of the habit of mind so many of our people have fallen into toward public treasuries.

It is so easy, not only for individuals but for groups and associations—Chambers of Commerce, for example—to promote expenditures locally by Federal agencies, solely upon the basis of temporary commercial benefits. They deal glibly with the term "government" or "Federal" money. How many stop to give thought to the fact that actually

there is no such thing as "government" money. The government does not *make* money, it does not *earn* money, except in a very minor manner. The money the Treasury is called upon by the Congress to expend in this or that direction is gotten for the Treasury by the tax collectors. In other words, it is taxpayers' money, money that is hard to come by in most instances, that the unthinking Chambers of Commerce and other enthusiastic promoters strive to have doled out locally. I have no doubt that many in this room can help out in this business of cutting government spending by taking heed of the thought I have just expressed.

Again upon the report: It has been pointed out quite forcibly by some critics, and justifiably so, that while it is ably written and well documented in many particulars, it failed to adequately recognize the many sound recommendations made to the commission by technical experts, both in and out of government, who were called before meetings and hearings for this purpose. Be that as it may, it is a cold, hard fact facing the men involved in management of the industry represented at this meeting that the commission was guided in its thinking by a membership majority which was predominantly public power minded. In such circumstances, it was a foregone conclusion that the report would be slanted against the further growth of private enterprise in the field of power production. What then is the situation with which you are called upon to deal?

The report was submitted to the President, and we understand work was under way on proposed legislation to implement the commission's recommendations. The issue then is joined. You will defend the right of free enterprise to expand the manufacture and distribution of electric power by privately-owned and managed concerns. You will not seek monopoly. You will give conscientious concern to the public good and, in doing so, you will gladly cooperate in establishing fair and equitable rates by regulatory bodies. You will not strive for undue advantage in any direction.

You will, in these circumstances, present to your representatives in the National Congress a case against repressive legislation, which must appeal. You will be fighting for principle in your determination to protect the system of freedom of opportunity which has made America great and strong. The destruction of that system in your industry would make attack upon other industries easier to the enemy which is knocking at the door of American leadership.

Which brings me to close upon a note of alarm and of appeal. We, here in America, all of us, regardless of race, creed, color or politics, have a job to do. Following World War II we found this nation of ours playing a new role in world affairs. It was not a role of our choosing, but rather one forced upon us by the fact we emerged from the great conflict as the richest and most powerful of all the nations. We were inexperienced in such world leadership, we were inept, and we admittedly made mistakes. In a spirit of what we believed to be world brotherhood, we disarmed and dissipated the greatest military force ever assembled under one flag.

We played, and are playing, gentlemen, too much politics, and when I say too much politics, I mean to infer no differentiation between political parties. I mean too much politics, period. If we are to save America and its proven way of life for our children and our grandchildren, we are going to have to bring our political bickerings and our belaboring of each other to an end or, in the humble opinion of this speaker, we are committing a murder. We are scuttling a great people and a great cause.

If I am any judge, I believe you men who are gathered here are capable of the kind of leadership this country needs. You have opportunities every day to advance the cause of freedom amongst your associates in business, amongst your employees. It is really a very great responsibility, gentlemen, but it is also a privilege. It is my belief that God meant this country to develop and maintain, by example, a freedom to which all the world would some day rally. We are challenged in that concept today. I call upon all of you to join in defending your heritage. My appeal is not to Republicans or to Democrats. It is to Americans, all!

Detroit Edison Connects Its Millionth Customer

SOMEWHERE in the 7,600 square-mile area served by Detroit Edison, on June 13, linemen made a new connection that brought the number of Edison meters now operating to one million.

The millionth meter was one of 125 installed during the working day throughout the Edison service area, which extends from Port Huron almost to Lansing, and from the tip of the Thumb to below Monroe. Some three and a half million people — about half the population of Michigan — live in this area. The 125 new connections — daily average, at present, for Edison — were made on farms, in urban homes, and in commercial and industrial establishments.

Announcement that the company had reached its millionth customer came from Roy T. Duncan, Detroit Edison commercial manager. "To us, the millionth meter, whether installed on a farm or in a home or shop, is important not just as a number, but as a symbol," he said.

"The millionth meter is a reminder that electricity is and will be available everywhere in the great southeast Michigan territory — to every farm, every household, every store or factory that calls for light and power. It is a symbol of the growth of facilities to match growth of population and increased use of electricity in the state's industrial heart."

Mr. Duncan, who has been with Detroit Edison since the early 1900s, recalled past days of the industry when line crews traveled by horse and wagon to maintain the company's then small, single-plant network. He estimated that Edison's present system, supplied by four major plants, now requires maintenance of about 100,000 miles of transmission and distribution lines.

He also told of problems of metering electricity in the early days. "At one time," he said, "people bought their light and power by the ounce, so to speak."

This was when meters were of the chemical type, with anode and cathode rods immersed in a jar of conducting solution. To find out how much electricity a customer had used, the meter-reader had to remove the rods and take them to the Edison central station for weighing. The amount of metallic deposit transferred since the previous reading determined the amount of the customer's bill.

"It's amusing to look back," Mr. Duncan said, "but the electric industry's policy is to look forward, instead, to greater efficiency and better conservation. That's why today a modern steam-electric generating plant gets as much energy out of a single ounce of coal as can be produced by a ton of water falling a hundred feet. Also, that's why the amount of electricity that cost a dollar in 1940 now costs only 97 cents, although the cost-of-living index is up 70 per cent."

Report of the Prize Awards Committee

By George E. Whitwell
Chairman, Prize Awards Committee, EEI

Excerpts from the Prize Awards Presentation at the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 6, 1951

I AM happy to be here this morning as chairman of the Prize Awards Committee. The other two members are Ed Gushee and Henry Steinmetz, well known to all of you as vice presidents, respectively, of The Detroit Edison Co. and of the Public Service Electric and Gas Co. of New Jersey.

There are two awards to be made today: first, the Claude L. Matthews Valor Award, which honors acts of devotion to duty wherein extraordinary courage and resourcefulness have been exercised in an effort to maintain or restore important electric service; and second, the Reddy Kilowatt Annual Report Contest Awards, established ten years ago and made to the companies that best illustrate, humanize, and simplify their operations when reporting to their stockholders.

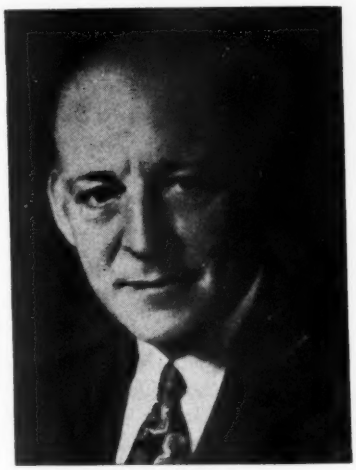
These awards and others presented earlier this year are important, not only insofar as they recognize outstanding achievements in the fields they cover but because they are a continuing source of inspiration to people engaged in the electric utility business. Winners are chosen only on the basis of the results obtained. It is not necessary in competing for these awards to prepare elaborate or costly entries. In consequence, the smaller utilities have the same opportunities for winning as larger ones.

To all of those who have competed for the awards sponsored by EEI, we extend our appreciation. They have helped us through their entries and, whether winners or not, have gained greatly for themselves and their companies through their efforts.

Indebted to Donors

To an even greater extent, perhaps, we are indebted to the donors. To them accrues a far-extending value not only in the over-all recognition and promotion of their products and services, but in the approbation with which they are regarded by both customers and competitors.

In addition, we are grateful to those who gave so freely of their time in judging the entries. Each member of your



GEORGE E. WHITWELL

Prize Awards Committee desires to express his thanks for the interest shown by the judges and for the very real work which they did in determining winners, a job this year which was peculiarly difficult because of the unusual excellence of the many entries.

Before proceeding further with this morning's awards, I should like to announce again those who won the prizes which were presented at the Chicago EEI Sales Conference, held during the first week in April. At that time five awards were made:

1. The Planned Lighting Awards, launched three years ago by the Edison Electric Institute and the Better Light Better Sight Bureau to raise the standards of illumination in all principal markets

2. The Laura McCall Awards, given by *McCall's Magazine* for excellence in home service accomplishments

3. The George A. Hughes Awards, offered by Hotpoint, Inc., and covering promotion of electric kitchens and electric kitchen appliances

4. The Thomas W. Martin Rural Electrification Award, presented by Mr. Martin, president of the Alabama Power Co.

5. The Frank E. Watts Awards, sponsored by the *Farm Journal*.

Your committee reports that, in the five foregoing contests, there was a much larger number of entries this year than in any previous one. Actually, the total entries this year for these awards numbered 145, as compared with 77 last year, 75 the year before, and only 58 in 1947. There was no prize this year for which there were not sufficient entries to provide real competition. In addition to the trophies and plaques, the total of the money given at Chicago was $5,450.

There is probably no better time than now to announce another newcomer among these awards. Next year, the Westinghouse Electric Corp. will have one for modern electric laundries.

In connection with the five awards which were presented at the Chicago EEI Sales Conference, a rather elaborate method of presentation was followed. We had with us there Miss 1960, Mr. Merchant 1960, Miss Home Service 1960, Mrs. Homemaker 1960, and Mr. Farmer 1960.

Method of Presentation

To introduce each group of award winners, a representative character, dressed to show what might be worn in 1960, came on the stage and briefly prophesied what would be in store for that particular branch of the industry in 1960. Mr. Merchant 1960 said he had made money by using planned lighting in his business, so that he could afford to appear as a prosperous, successful businessman. Planned lighting certainly seemed to have put him in the money. He said that businessmen then were looking forward to the new lighting source based on the principle of electroluminescence, the area source of light. He also said that, along with the sweet music and plenty of cokes in the factories, there was all-luminous ceiling lighting for busy production areas. Mr. Merchant 1960 then came up with the idea that, if merchants and office managers hired nothing but platinum blondes instead of brunettes, light absorption in stores and offices could be reduced by at least 6.71 per cent more!

The winners of the equal value Planned Lighting Awards were:

M. H. Frank (left), executive vice president of Wisconsin Power and Light Co., holds the plaque awarded his company as first prize in the Reddy Kilowatt Annual Report Contest. Holding honorable mention certificates are (left to right) R. W. McClure, vice president, Kansas Power and Light Co.; J. M. Bell, president, New York State Electric and Gas Corp.; and C. E. Oakes, president, Pennsylvania Power and Light Co. D. C. McKee, president and general manager, Empire District Electric Co., and Allen Van Wyck, president, Illinois Power Co., display special mention certificates.

Commercial Lighting Division
British Columbia Electric Railway Co., Vancouver, B. C.
Indianapolis Power and Light Co., Indianapolis, Ind.
Philadelphia Electric Co., Philadelphia, Pa.

Industrial Lighting Division
Pennsylvania Power and Light Co., Allentown, Pa.
Philadelphia Electric Co., Philadelphia, Pa.

Residential Lighting Division
Cincinnati Gas and Electric Co., Cincinnati, Ohio
Dayton Power and Light Co., Dayton, Ohio

Next we came to the ladies. In connection with the Laura McCall Awards, Miss Home Service 1960 appeared and told what Home Service was like then. Miss Home Service 1960 made quite a hit when she said that, because of the big change in public opinion in the U. S. since November, 1952, things had gone back to normal—plenty of steaks, lower income taxes, two or three television sets to the family, and nearly every Home Service gal able to afford a little mink—but let's get back to the story. In 1960, instead of cooking schools, Home Service uses color television to promote all-electric kitchens and laundries.

Laura McCall Awards

Laura McCall Award winners were:
Division A—Miss Edith Hitchcock, Alabama Power Co., Birmingham, Ala.
Division B—Mrs. Marjorie Hume, San Diego Gas and Electric Co., San Diego, Cal.
Division C—Mrs. Avis R. Broadhurst, West Penn Power Co., Pittsburgh, Pa.; Miss Evelyn Hansen, Utah Power and Light Co., Salt Lake City, Utah; Miss Doris Oglesby, Georgia Power Co., Atlanta, Ga.

To represent the typical "little woman" in the home of 1960, the chief beneficiary of better home appliance promotion as sponsored by the George A. Hughes Awards, Mrs. Homemaker 1960 stole the show for a few moments. She offered some very practical suggestions to manufacturers, dealers, and utilities for selling labor-saving appliances to homemakers. Mrs. Homemaker 1960's strongest appeal was in her closing words: "I'm just the little woman in the home, ladies and gentlemen, but millions and millions of dollars every year are spent to get me to buy electric appliances. I just hope you won't forget that I and the other little women like me will buy when we are sold on an appliance or service. Just keep on telling us about them again and again!" Something to remember, gentlemen.

Hughes Awards

The Hughes Awards winners were:
Electric Kitchen Promotion
First Prize—Florida Power and Light Co., Miami, Fla.
Second Prize—Potomac Electric Power Co., Washington, D. C.

Electric Range Activity
First Prize—Carolina Power and Light Co., Raleigh, N. C.
Second Prize—Florida Power and Light Co., Miami, Fla.

Electric Water Heater Activity
First Prize—Kingsport Utilities, Inc., Kingsport, Tenn.

Recipient of one of the Claude L. Matthews Valor Awards was Henry Schwend (center), Union Electric Co. of Missouri, with R. S. Matthews (left), son of award donor, and J. W. McAfee, president of Union Electric.

Second Prize—Indiana and Michigan Electric Co., Fort Wayne, Ind.

Honorable Mention—Carolina Power and Light Co., Raleigh, N. C.

Electric Dishwasher Activity

First Prize—Philadelphia Electric Co., Philadelphia, Pa.

Second Prize—Central Arizona Light and Power Co., Phoenix, Ariz.

Commercial Electric Cooking Activity

First Prize—Pennsylvania Power and Light Co., Allentown, Pa.

Second Prize—Carolina Power and Light Co., Raleigh, N. C.

There were two farm awards made this year: the Thomas W. Martin Award and the Frank E. Watts Awards. A unique character, Mr. Farmer 1960, brought the audience up with a jolt. Never had they suspected that in 1960 the farmer could have a life such as he pictured his life to be. Among other things, he said:

"I thought I'd come here in person, Mr. Whitwell, to tell you what's happening to us farmers in 1960. Things on the farm aren't as mixed up in 1960 as they were back in 1951. You utility boys have made a wonderful go of rural electrification, and we on the farms are sitting pretty in 1960.

"We're really managers now . . . push buttons same as you utility magnates. So now we farmers set on the porch in summer, and we set in our big, comfortable, all-electric kitchens in winter. A tricky little apparatus that looks like an overgrown automatic phone dial takes the work out of farming. By dialing the proper slot, I can start, guide, stop my tractor, harrow, cultivators, without being on the spot. I can dial any motor on the farm to start or stop. And what with this short wave business, the electric eye, the time switches and the thermostats, being a farmer in 1960 actually is all it was cracked up to be back in the days of farming by governmental remote control regulations.

"You know, I wish I could have brought my wife with me here today, but she's down for her regular Wednesday beautifying. Oh yes, she flies in every Wednesday for that. Takes the early jet and gets back in time to take dinner out of the freezer and to heat it up on the electric range. Life is pretty easy for her now.

"I guess the homemakers in the cities and suburban areas have it just as easy now in 1960 also, what with their automatic laundries, food waste disposers, dishwashers, automatic electric ranges, and color television in their kitchens. Sometimes, Mr. Whitwell, I think . . . and it's just a hasty, hidden thought that I wouldn't like to have get around to my wife and her friends . . . sometimes I think we're letting our womenfolks have it too easy. Maybe we ought to bring them back more to the level of those hardy pioneers of 1951—the gals who had to push a button to cook their dinners instead of having it done all automatically, who used to wash and dry dishes by hand, and who had to be content with only one television set."

George E. Whitwell (left), chairman of the Prize Awards Committee, watches as R. S. Matthews presents a Claude L. Matthews Valor Award to Arthur Vanderbilt, one of 15 men from Jersey Central Power and Light Co. who were thus honored. Left to right, John E. Casey and Alfred R. Eckman are shown with their awards, while E. H. Werner, president of Jersey Central, holds the company's certificate.

W. W. McClure (center), Utah Power and Light Co., representing 120 employees, accepts Claude L. Matthews Valor Award from R. S. Matthews (left) while G. M. Gadsby, president of Utah Power and Light, looks on.

Thomas W. Martin and Frank E. Watts Awards

The winner of the Thomas W. Martin Award was The Detroit Edison Co., Detroit, Mich., with Honorable Mentions going to the Georgia Power Co., Atlanta, Ga., and the Northern States Power Co., Eau Claire, Wis.

The winners of the Frank E. Watts Awards were:

First Prize—Pacific Gas and Electric Co., San Francisco, Cal.

Second Prize—Alabama Power Co., Birmingham, Ala.

Third Prizes—Pennsylvania Power and Light Co., Allentown, Pa.; Rochester Gas and Electric Corp., Rochester, N. Y.; West Penn Power Co., Pittsburgh, Pa.

There remains but one more mention of past prizes, namely, the Edison Electric Institute Medal Awards and the Edison Electric Institute Safety Merit Awards approved during the year 1950. The first of these awards, given for cases of successful resuscitation from electric shock, is authorized by a Committee of Judges. The second is based on certain statistical results. The winners of both of these awards have already received their medals and certificates. In each case, appropriate presentation ceremonies were conducted.

The Edison Electric Institute Resuscitation Medal was given during 1950 to 20 individuals employed by 13 electric utility companies. The Safety Merit Award during the same year went to 14 companies. It is impossible to overemphasize the value of this recognition of safety in utility operation.

Claude L. Matthews Valor Award

It is now my pleasure to announce the winners of the Claude L. Matthews Valor Award. It is given for unusual devotion to duty within the electric utility industry that has resulted in better service to the public.

The judges approved all three applications submitted this year for this coveted award. The winners were the Union Electric Co. of Missouri, St. Louis, Mo.; Jersey Central Power and Light Co., Asbury Park, N. J.; and Utah Power and Light Co., Salt Lake City, Utah.

The representatives of these companies receiving medals number 136. (Only a few recipients of the Matthews Valor Award were able to attend the convention to take part in the presentation ceremonies. The names of all winners, however, appear elsewhere on this page.)

Unfortunately, Claude L. Matthews, the donor, was unable to come to Denver, but he will be represented today by his son, Rives S. Matthews. I will now read the citations of the judges in connection with valor beyond the normal call of duty during an emergency.

"On October 8, 1950, Henry Schwend (of the Union Electric Co. of Missouri) displayed heroic devotion to duty in extinguishing a severe oil fire at Enright Substation. Singlehandedly and at great personal risk he prevented the fire from spreading to the entire substation, brought it under control without a power outage, and protected the lives of fire fighters unfamiliar with the high-voltage equipment.

"A 33-kv cable pothead had failed in the oil-filled disconnecting switchbox of a 10,000-kva transformer, causing 350 gallons of oil to catch fire. When Mr. Schwend, a traveling operator, was called to the scene, flames were leaping 30 feet above the transformer. He first tripped out the adjacent transformer to remove the high-voltage hazard and then proceeded to fight the fire with hand equipment.

"The courageous and prompt action of Mr. Schwend was in keeping with the high traditions of the electric service industry."

The citation of the Jersey Central Power and Light Co. reads as follows:

"At the time of the South Amboy, New Jersey, munitions explosion of May 19, 1950, the operating personnel of the Jersey Central Power and Light Company's South Amboy Power Plant displayed outstanding courage and loyal devotion to duty in the face of grave danger.

"The explosion of 600 tons of munitions occurred 550 yards from the plant. Some 2,300 live antipersonnel mines were blown into the plant and on the plant property. Collapsed walls and twisted steel posed additional hazards. Although many were wounded and all were suffering from shock, these men went calmly about their job of shutting down the plant to prevent further damage, and switching the load so that service could be maintained to the stricken city. Only after these operations were completed did the men seek medical attention and in-

Winners of the Claude L. Matthews Valor Award

Jersey Central Power and Light Company

Herbert Blaicher
Thomas Bonis
Joseph Carroll, Jr.
John E. Casey
John Cooney
Vitale Di Giambattista
Alfred Eckman
James Guilfoyle
Carl Holtslander
Sam Rosato
Raymond Septor
Edward A. South
Arthur Vanderbilt
Harry Weisman
Ted Ziniewicz

Union Electric Company of Missouri

Henry Schwend

Utah Power and Light Company

William R. Ashbaker
George E. Atkinson
A. L. Austin
Raymond E. Bailey
Dale C. Baldwin
Eden W. Beutler
Floyd A. Bolton
Edward L. Bowen
Lamar G. Bowen
George C. Brown
Dean L. Bryner
Alma J. Burnham
Jack F. Butterfield
Shirl D. Cannon
Lamarr A. Charles
Grover S. Cleveland
Jasper F. Cook
David A. Coombs
Boyd W. Crompton
Spencer C. Crookston
Henry S. Curtright
Eugene Dalton
William S. Done
Wilford F. Durfey
Robert L. Earl
Michael D. Erickson
Charles L. Ericson
Morgan D. Evans
Ralph Farley
Harvey P. Foster
Kenneth E. Fowers
James E. Francis
Reuben L. Gibson
Gordon C. Goodliffe
Nathan R. Hale
Sherman H. Halling
Maylon E. Hansen
Varion W. Hansen
Wallace G. Harrington
Alfred V. Harris
Glen D. Harris, Jr.
Homer C. Hurd
Mark H. Jensen
Robert S. Jenson
Earl Johnson
Earl W. Johnson
Leslie L. Johnson
Thomas E. Johnston
Donald M. Jones
Rulon Jones
Norman James Kirby
Elmer E. Lee
Ezra E. Lefler
Clinton S. Low
Leo G. Low
Chadwick H. Mathews
Olef N. Mead
Lowell G. Miles
Orin G. Miles
Willard D. Miner
Rulon F. Mitchell
Richard M. Morgan
Manfred M. Murray
Mark W. McGavin
Youngs C. McGregor
Alton R. McClellan
James H. McClure
William W. McClure
Edwin A. Nelson
Ray F. Nelson
Rufus M. Nungesser
Klar W. Ogden
Melvin S. Olsen
Virgil O. Packer
Sherman Parker
Raymond B. Parkinson
Daniel W. Perkins
James C. Perkins
Marion O. Perkins
Donald H. Pinson
Thomas C. Poole
Daniel Popa
James C. Rawlinson
Budd C. Raymond
Elmer W. Rhoads
William S. Richardson
Jesse M. Roberts
Victor G. Roberts
Don R. Robinson
Otto L. Rucker
Marvin Y. Simmons
Ralph B. Simmons
White G. Simons
White D. Simons
Boyd H. Smart
Luke G. Smith
Melvin Smith
Conder E. Smoot
Joseph E. Smout
Leonard S. Sorensen
Roy A. Sorenson
Fred W. Spillman
Raphael L. Steel
Wilbur W. Stirling
Alvin E. Strong
Grant F. Teuscher
Glen R. Thompson
Kim D. Thompson
George R. Upchurch
Grant L. Webb
Henry H. Wesley
John C. Widmer
Mark I. White
Ernest R. Winn
Clyde R. Witter
Robert L. Williamson
Carl O. Wold
Daniel J. Worts
Densil C. Wright
Lee York

formation about their families in the blast area. The quick and courageous actions of the crew prevented further damage to the plant and made possible early restoration of the station. By their action these men showed a devotion to public service far beyond the reasonable demands of duty."

Members of the Utah Power and Light Co. earned the following citation:

"When heavy frost accumulated on the lines and poles of the Utah Power and Light Co. during the week of December 22-28, 1950, line crews and other operating personnel totaling 120 men displayed heroic devotion to duty by working night and day under extremely hazardous conditions of frost, snow, and dense fog on the patrol and repair of lines to avert a major outage on the entire system.

"With conductors, poles, and towers covered with six inches of frost, failures on major transmission lines occurred in almost inaccessible mountain areas. Climbing, repair, and patrol were extraordinarily difficult and dangerous as frost accumulated on tools, materials, and the men themselves. Despite these critical conditions, there was only one system shutdown of very short duration, and not a single accident. These men displayed teamwork, loyalty, courage, stamina, and resourcefulness in keeping with the highest traditions of the electric industry."

Reddy Kilowatt Annual Report Contest Awards

We come now to the Reddy Kilowatt Annual Report Contest Awards. Of course, Reddy Kilowatt is Ash Collins, or vice versa. The awards offered by him over the years and again this year have been most valuable in humanizing and making more understandable the annual reports of electric utility companies. Far better relations with stockholders have been an important result.

In this year's contest, the judges were unanimous in stating that there has been tremendous growth and industry-wide improvement in the practice of reporting in humanized language and simplified figures. When this contest was started in 1939, it was difficult to arouse interest in this subject; today, the reports are much more colorful, informative, and helpful to the average reader and to the financial analyst.

The judges made the following recommendations for future annual reports:

1. More reports should get away from the old practice of stereotyped opening paragraphs such as those that start out "By Order of the Board of Directors I have the honor to present, etc., etc."
2. Less space should be used for the auditors' certificate in the back of the report.
3. In comparative financial statements showing the figures in columns by years, the first column on the left should be headed by the year for which the report is made.
4. For the benefit of the analyst, the simplification and humanization of the reports should contain supporting details presented toward the end.
5. Something descriptive of the territory and its prospective growth should be in every annual report.
6. Overdoing pictures of directors, officers, etc., should be avoided.
7. More managements should attempt to explain the objectives of their companies.

In choosing the winner, the judges stated: "Because its report for the calendar year 1950 had all of the elements which the rules of the contest required, plus a statement of the philosophy and goals of the company and of the industry, and because of other important attention to details, the winner of the award is the Wisconsin Power and Light Co. of Madison, Wis."

The judges awarded honorable mention to three companies, Kansas Power and Light Co., New York State Electric and Gas Corp., and Pennsylvania Power and Light Co., because their reports were not only outstanding but had many of the elements that existed in the winning report.

The judges also made special mention of the Annual Report of the Empire District Electric Co. for its page 9, a full page showing pictorially what the dollar would buy now as compared with 1940; and of the report of the Illinois Power Co., particularly for pages 30 and 31 entitled "Ten Years of Progress."

I want to thank you ladies and gentlemen in the audience this morning for coming here to honor the recipients of the awards which have just been made. It is more than heartening to the award donors and the award winners of this year to have this gathering of their friends and associates turn out in this fashion in their honor. We of the Prize Awards Committee hope that that which has occurred here during the past few minutes will inspire many entries for the awards that will be given next year, announcements of which will begin to appear shortly after Labor Day.

Everyone who enters has an equal chance. Competing, in itself alone, is valuable to the entrant and his company. Most important of all, you can be a Winner!

Scholarships Honor Originator of Oesterreich Pole Top Resuscitation

HONORING Edmund William Oesterreich and the valuable contribution to the saving of human life made by the Oesterreich Pole Top Method of Resuscitation, two scholarships have been established at Carnegie Institute of Technology by the Duquesne Light Co. (See story on page 241.)

Two part-tuition freshmen scholarships in the amount of $300 each are to be given to sons or daughters of Duquesne Light Co. employees each year from the income derived from $17,500 that was given to the Carnegie Institute of Technology Endowment Fund in 1945, $12,500 of such amount having been given by the Duquesne Light Co. and $5000 by the Philadelphia Co., Duquesne's parent company. Both scholarships will apply to the school term beginning this fall.

The scholarships are to be limited to students enrolled in regular freshman day-courses, except that if less than two sons or daughters of Duquesne employees qualify for regular freshmen day-course scholarships in a particular year, either or both of the E. W. Oesterreich Scholarships may be granted at the discretion of Carnegie:

First, and preferably, to apply to the tuition in the sophomore, junior, or senior year of any regular day-student who was the recipient of an Oesterreich scholarship in his or her freshman year, provided that a parent of such student is still an employee of Duquesne.

Second, to apply to the first year tuition of from one to six sons or daughters of Duquesne employees enrolled in regular evening courses.

Third, to apply to the freshman tuition for the regular day-course of an entering student who is not a son or daughter of a Duquesne employee but is a resident of Allegheny or Beaver County in Pennsylvania.

Responsibility for the selection of those to whom the E. W. Oesterreich Scholarship awards are to be given is to rest with Carnegie Institute.

Is Life Worth Saving?

By C. E. Kohlhepp

President, Wisconsin Public Service Corporation

Excerpts from an address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 6, 1951

Mr. Kohlhepp made the following observations on safety before he conducted the presentation ceremonies in which E. W. Oesterreich received a commemorative bronze and a Citation for Distinguished Service for his development of the Pole Top Method of Artificial Respiration.

IS life worth saving? It's a ridiculous question, isn't it, when directed to the type of skilled and intelligent men who make up the work force of the electric power industry? Of course their lives are worth saving.

Then why do we continue to have preventable deaths and serious injuries? Our record is not too good, and it can be substantially improved. The result should be saved lives, substantial reduction of crippling injuries and human suffering, and lower over-all costs. Safe work is more efficient, and therefore costs less, to say nothing of the substantial reduction of direct and indirect costs of accidents. While our primary motive must be the humane one, there is no need for us to be oblivious to the fact that a good safety record means over-all higher morale and more efficient operation. Money spent for safety is a good investment.

Electric Industry Safety Record

I would like you to look at three charts. The first (Chart I) shows the accident record of all American industry as compiled by the National Safety Council. It indicates that we are not as good as the average. Our proud industry certainly cannot tolerate this.

The second (Chart II) shows that we have made no progress in lost time accident frequency since the early thirties, although there is an indication of modest improvement as to fatalities.

The third (Chart III) is perhaps the most important. It shows our record for the period 1932 through 1949. On it I have superimposed a curve representing the five companies whose record over the period 1945 through 1949 was the poorest of all member companies. When the chart came to me it stopped at 27. Note that I had to extend it to 40! Now look down near the bottom where I have superimposed a curve for the five best companies. If they can do it, why can't we all? The answer is, we can. Then why don't we? It is not hard; in fact, it is easy to do.

C. E. KOHLHEPP

At this point I should pause to say that an analysis of the records of the various companies shows no clear pattern as to size, type of operation or geographical location which determines whether a company will have a poor, an average, or an outstanding safety record.

I am not going to take time today for a detailed exposition of what needs to be done to improve our safety record, or how to do it, but I direct your attention to a comprehensive tabulation entitled "Fundamental Principles of Safety for Utility Executives" (BULLETIN, May, 1951, page 154), which would, I am sure, have the unqualified approval of our safety experts. It is well worth our study and use.

Our very fine Accident Prevention Committee has a tremendous amount of data of all kinds, detailing effective physical and human techniques. All of this material, as well as the aid and guidance of the capable men on the committee, is yours for the asking.

While I am not going into details, I must refer to one basic principle so vital to the success of any safety program that I would be derelict to duty, were I to fail to mention it.

A successful safety program must have the top executive officer's interest and support. His interest must be sincere, not casual; he must write letters of commendation and special safety messages for bulletin boards; he must participate in a safety meeting occasionally; and he must raise a little hell when an avoidable serious accident occurs to emphasize that he is vigilant and genuinely concerned. I am not suggesting that this busy man spend a large amount of his time and energy on the task. His personnel and safety officers should relieve him of practically all of the detail. The really vital thing is heartfelt and continuing interest.

Every employee must be conscious at all times that the safe conduct of his duties is ever subject to the scrutiny of the company's executive head.

There now follows a perfect, if not classic, example to completely support the fact that the cardinal principle of a successful safety program is the sincere interest of the boss.

Classic Example

Through the good sportsmanship of G. L. MacGregor, president of Dallas Power and Light Co., I am permitted to say that the company has had one of the poorest safety records, having had a frequency rate of 28.94 per cent for the first 11 months of 1950. Mr. MacGregor's concern caused him to personally and actively participate in Dallas Power and Light's safety program, which resulted in the company's having but one lost-time accident in December, 1950. His continuing enthusiasm and interest in safety, which carries through the entire organization, keeps the one-year program developed by the personnel department, headed by H. R. Pearson, going in 1951. So far this year, Dallas has had only one lost-time accident, reducing its frequency rate to less than 1 per cent. Those of us who have

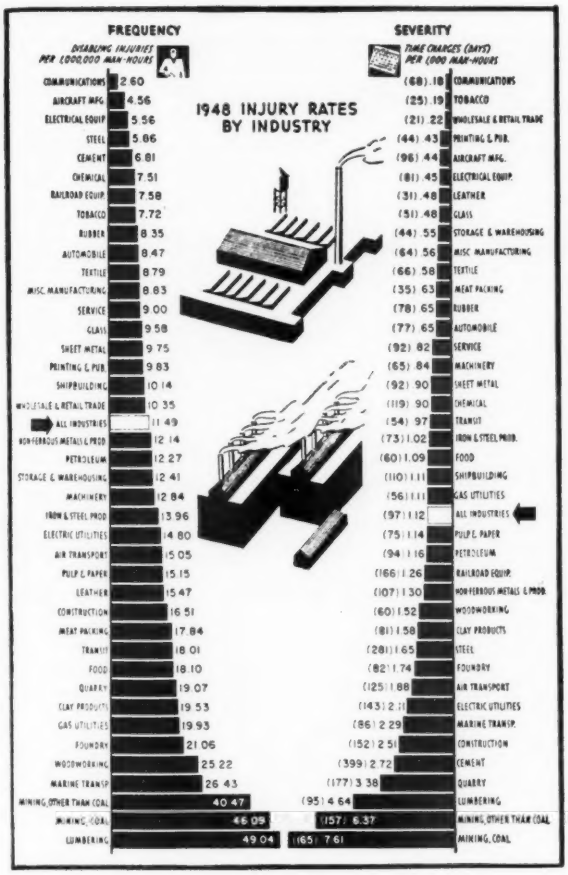

FREQUENCY
DISABLING INJURIES PER 1,000,000 MAN-HOURS
SEVERITY
TIME CHARGES (DAYS) PER 1000 MAN-HOURS
1948 INJURY RATES BY INDUSTRY
COMMUNICATIONS 2.60 (68).18 COMMUNICATIONS
AIRCRAFT MFG. 4.56 (25).19 TOBACCO
ELECTRICAL EQUIP. 5.56 (21).22 WHOLESALE & RETAIL TRADE
STEEL 5.86 (44).43 PRINTING & PUB.
CEMENT 6.81 (96).44 AIRCRAFT MFG.
CHEMICAL 7.51 (81).45 ELECTRICAL EQUIP.
RAILROAD EQUIP. 7.58 (31).48 LEATHER
TOBACCO 7.72 (51).48 GLASS
RUBBER 8.35 (44).55 STORAGE & WAREHOUSING
AUTOMOBILE 8.47 (64).56 MISC. MANUFACTURING
TEXTILE 8.79 (66).58 TEXTILE
MISC. MANUFACTURING 8.83 (35).63 MEAT PACKING
SERVICE 9.00 (78).65 RUBBER
GLASS 9.58 (77).65 AUTOMOBILE
SHEET METAL 9.75 (92).82 SERVICE
PRINTING & PUB. 9.83 (65).84 MACHINERY
SHIPBUILDING 10.14 (92).90 SHEET METAL
WHOLESALE & RETAIL TRADE 10.35 (119).90 CHEMICAL
ALL INDUSTRIES 11.49 (54).97 TRANSIT
NON-FERROUS METALS & PROD. 12.14 (73)1.02 IRON & STEEL PROD.
PETROLEUM 12.27 (60)1.09 FOOD
STORAGE & WAREHOUSING 12.41 (110)1.11 SHIPBUILDING
MACHINERY 12.84 (56)1.11 GAS UTILITIES
IRON & STEEL PROD. 13.96 (97)1.12 ALL INDUSTRIES
ELECTRIC UTILITIES 14.80 (75)1.14 PULP & PAPER
AIR TRANSPORT 15.05 (94)1.16 PETROLEUM
PULP & PAPER 15.15 (166)1.26 RAILROAD EQUIP.
LEATHER 15.47 (107)1.30 NON-FERROUS METALS & PROD.
CONSTRUCTION 16.51 (60)1.52 WOODWORKING
MEAT PACKING 17.84 (81)1.58 CLAY PRODUCTS
TRANSIT 18.01 (281)1.65 STEEL
FOOD 18.10 (82)1.74 FOUNDRY
QUARRY 19.07 (125)1.88 AIR TRANSPORT
CLAY PRODUCTS 19.53 (143)2.11 ELECTRIC UTILITIES
GAS UTILITIES 19.93 (86)2.29 MARINE TRANSP.
FOUNDRY 21.06 (152)2.51 CONSTRUCTION
WOODWORKING 25.22 (399)2.72 CEMENT
MARINE TRANSP. 26.43 (177)3.38 QUARRY
MINING, OTHER THAN COAL 40.47 (95)4.64 LUMBERING
MINING, COAL 46.09 (157) 6.37 MINING, OTHER THAN COAL
LUMBERING 49.04 (165) 7.61 MINING, COAL

Chart I—American Industry Accident Rates. Figures in Parentheses Show Average Time Charge Per Case.

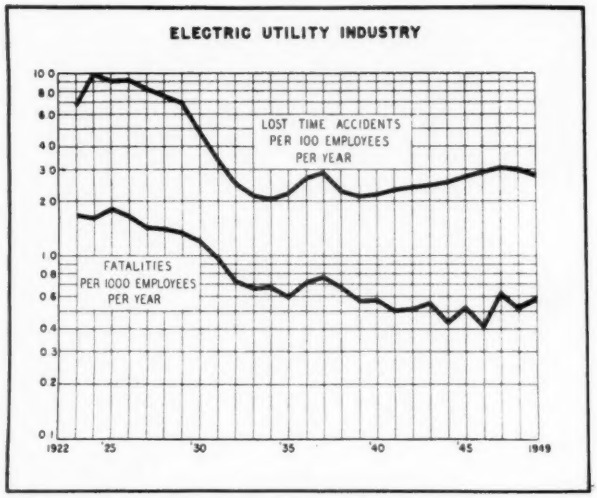


Chart II—Lost Time Accident Frequency and Fatalities Per Year in the Electric Utility Industry.

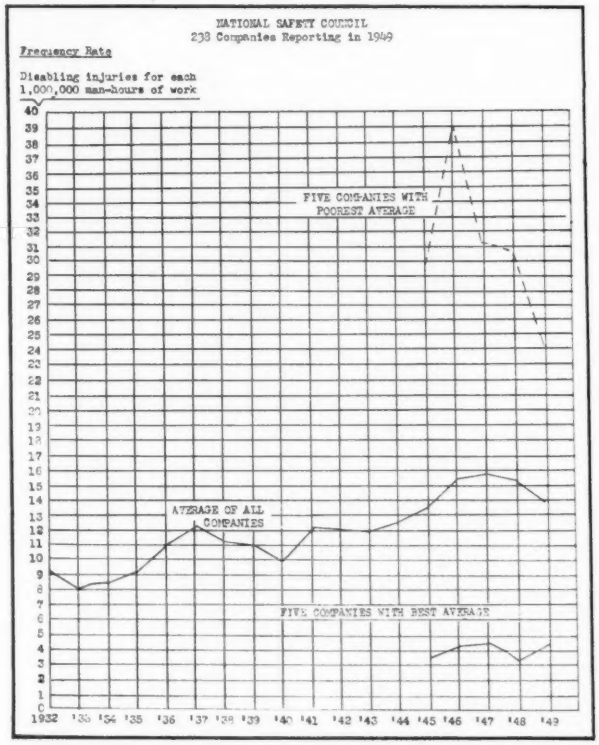

NATIONAL SAFETY COUNCIL
238 Companies Reporting in 1949
Frequency Rate
Disabling injuries for each 1,000,000 man-hours of work
FIVE COMPANIES WITH POOREST AVERAGE
AVERAGE OF ALL COMPANIES
FIVE COMPANIES WITH BEST AVERAGE
1932 '33 '34 '35 '36 '37 '38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49

Chart III—Comparison of Frequency Rate of Disabling Injuries in the Electric Utility Industry.

been active contestants for high honors every year will need to keep a weather eye on Dallas hereafter, but the company is more than welcome as an honored competitor, and we sincerely hope its happy experience will inspire many more companies to emulate its fine example.

In those cases where the chief executive has not had an interest and does not develop such interest from this talk, then it is the duty of the company's other officials and its safety and personnel executives to "gang up" on the boss and sell him on his responsibility for safety. Before long he will be grateful to you for the little push you gave him, because he will be able to boast that his leadership is producing substantial progress, and he will certainly enjoy the inevitable warm feeling of satisfaction in having helped to reduce suffering and save lives.

I am sure that pride of accomplishment, perfectionism, if you wish to call it that, will spur all companies with below-average records to resolve to join with the best, but in closing I wish to cite one vital statistic which should awaken our humane impulses and insure action.

In the ten years from 1941 through 1950, the electric power industry experienced 1300 accidental deaths. In 1950, there were 140. Not all accidents are avoidable, of course, and there will always be some. But if the record of our entire industry had been as good as that of the five best companies during that ten year period, the fatal accidents would have approximated 380; and 920 men, now dead, would still be healthy, happy, hard working power men!

Let us honor Mr. Oesterreich best by substantial elimination of cases where his life saving method is needed. Life *is* worth saving!

Commemorative bronze presented to E. W. Oesterreich, originator of the Oesterreich Pole Top Method of Artificial Respiration, for his unique contribution to the electric industry. The bronze was executed by noted sculptor, Karl Lang.

Creator of Life-Saving Technique Honored by Electric Industry

Oesterreich Pole Top Method of Resuscitation Credited With Over 100 Successful Rescues Since 1931

FOR his Pole Top Method of Artificial Respiration, which has already saved over 100 lives among the men who climb power-line poles in maintaining the nation's vital electric service, E. W. Oesterreich, general superintendent of distribution for Duquesne Light Co., Pittsburgh, Pa., received unprecedented honors from the electric industry and special recognition from national safety organizations at the 19th Annual Convention of the Edison Electric Institute.

Mr. Oesterreich was presented with a Citation for Distinguished Service and a commemorative bronze created for the occasion. Taking part in the ceremonies were George Fritz of Duquesne Light—who suffered electric shock 18 years ago and was saved by the Oesterreich method—and his six-year old daughter, Pearl Annabelle, accompanied by her grandmother, Mrs. Nancy Jane Fritz, a still sprightly lady of 77.

Mr. Fritz' rescuer, Michael Butchko of Duquesne Light, became in 1933 the first of some 95 men using the pole top method to receive the Edison Electric Institute Medal for Resuscitation.

The presentation was conducted by C. E. Kohlhepp, president, Wisconsin Public Service Corp., before an audience of more than 1000 representatives of the electric industry. After reading congratulatory telegrams sent to Mr. Oesterreich by national safety groups, Mr. Kohlhepp outlined briefly the development of the Pole Top Method.

Development of the Pole Top Method

"It is our great honor and pleasure," Mr. Kohlhepp said, "to pay tribute to E. W. Oesterreich for his contribution to his fellow workers, whose duties subject them to the hazard of contact with dangerous electrical voltages while working at elevated positions.

"After intensive research, in 1931, Mr. Oesterreich came to the conclusion that the conventional Schaefer Prone Pressure Method of artificial respiration was not well suited to the treatment of men who had suffered electric shock at the top of power poles.

"The efficiency of the Schaefer method was established in cases of asphyxiation, drowning, and electric shock at the ground level. But because of the time loss involved in lowering an electric shock victim from a pole to the ground, a procedure taking from about two to 10 minutes, prone pressure artificial respiration was frequently unsuccessful.

"Mr. Oesterreich set about eliminating the time loss. This could only be done by devising a means of giving artificial respiration right on the pole. His first thought was to simulate the Schaefer technique, but this was soon seen to be impractical, because pole structures are not constructed so that a human body can be laid horizontally on a flat surface, which must be secure, not only for the victim, but also for the operator astride the victim's back.

"Since the ventilation of the lungs is dependent upon the movement of the diaphragm and movement of the diaphragm can be obtained by pressure upon the abdomen, Mr. Oesterreich concluded that it was reasonable to assume that effective artificial respiration would result if pressure were applied to the front of the body in the abdominal region. This is particularly true if the pressure could be applied over a large area and if the outward movement of the sides of the abdomen could be restrained. Mr. Oesterreich tried out his theory—and it worked.

"He received consultation and encouragement from leading medical men, including Sir Edward Sharpey Schaefer, originator of the prone pressure method, and his process has had the approval and support of eminent medical authorities. The successful application of this system in 95 recorded cases is ample evidence of its efficacy.

"Mr. Fritz, whose life was saved by the Oesterreich Pole Top Method 18 years ago, his mother, and his little six-year-old daughter, Pearl Annabelle, are with us today. It is an interesting fact that, since Mr. Fritz's life was saved in 1933, Pearl is here today only as the result of Mr. Oesterreich's inspired discovery.

"The pages of history show clearly that the deepest and most lasting footprints on the sands of time are not made by merchant princes, but rather by those

Holding Pearl Annabelle Fritz, E. W. Oesterreich, general superintendent of distribution of the Duquesne Light Co., receives his bronze from C. E. Kohlhepp, president of the Wisconsin Public Service Corp.

who make contributions to the spiritual, the intellectual, the scientific, and the medical progress of the human race. Mr. Oesterreich has written his name with all those august men whose interest in their fellow men has brought us to the present state of our civilization.

"In honoring him we also honor ourselves. I am proud," Mr. Kohlhepp concluded, "to have been chosen to make the appropriate presentations to Mr. Oesterreich."

After receiving an appreciative kiss from little Pearl Annabelle, Mr. Oesterreich was awarded his commemorative bronze along with a citation presented in recognition of his "signal contribution to humanity and to the electric industry." The citation commended him for distinguished service "through his realization of a need, through his bold development of a new technique for the saving of human lives, and, finally, through his courageous and successful advocation of its use within the electric industry," and recommended that the resuscitation procedure originated by him henceforth be known as the Oesterreich Pole Top Method of Artificial Respiration.

Following the presentation to Mr. Oesterreich, Mrs. Fritz was given a bouquet of roses and Pearl Annabelle, a doll.

Career in Industry

E. W. Oesterreich was born in Chicago in 1894. After an engineering education, in which he specialized in electrical engineering and mathematics, he joined the Commonwealth Edison Co. in 1915 as a timekeeper in the underground cable division. In 1916 he was made a test engineer. Following a year's service in the U. S. Naval Reserve, he returned to Commonwealth Edison in 1919 as an engineer in the street department. In 1920 he was named senior assistant electrical engineer of the Chicago Sanitary District and in 1922 became associated with W. G. Woolfolk, a Chicago consulting engineer.

Mr. Oesterreich joined the Duquesne Light Co. in 1923 as superintendent of the underground cable division and in 1927 was appointed general superintendent of distribution, in which capacity he now serves.

He has always been active in trade associations. A fellow of the American Institute of Electrical Engineers and an honorary member of the American Society of Safety Engineers, he is a member of the Pennsylvania Electric Association and a member of the board of directors of the Western Pennsylvania Safety Council. He also serves on several AIEE committees and is a member of the EEI Transmission and Distribution Committee.

Bronze Executed by Noted Sculptor

The bronze presented to Mr. Oesterreich, which dramatically symbolizes the rescue of one lineman by another, was executed by sculptor Karl Lang, who studied with Gutzon Borglum and worked with him on the Stone Mountain, Ga., and Mt. Rushmore, S. D., carvings of historical figures.

When plans for the presentation to Mr. Oesterreich were being formulated, Mr. Lang accepted the commission for the bronze with enthusiasm, saying that in view of the past decade or more of world-wide human sacrifice, he would be "especially proud to share in the honoring of a man whose work had been directly aimed toward preserving human life rather than destroying it."

Some Congratulatory Telegrams Received by Mr. Oesterreich at the Convention

From the American Institute of Electrical Engineers

THE AIEE IS PROUD TO LEARN THAT YOU ARE BEING HONORED BY THE EEI FOR YOUR DEVELOPMENT OF THE POLE TOP METHOD OF ARTIFICIAL RESPIRATION. YOU HAVE PRESENTED OUR INDUSTRY WITH A HUMANITARIAN TOOL OF GREAT CONSEQUENCE. CONGRATULATIONS ON THIS WELL DESERVED HONOR.

TITUS G. LE CLAIR, PRESIDENT

From the American Red Cross

ON BEHALF OF THE FIRST AID SERVICE OF THE AMERICAN RED CROSS PLEASE ACCEPT OUR CONGRATULATIONS AT THIS TIME FOR YOUR CONTRIBUTION IN DEVELOPING THE POLE TOP METHOD. AS A PIONEER, YOUR EFFORTS HAVE RESULTED IN LIFE SAVING AND HAVE STIMULATED OTHERS IN THE QUEST FOR CONSERVATION OF LIFE. BEST PERSONAL WISHES.

CARL J. POTTHOFF, M.D., DIRECTOR OF FIRST AID SERVICE

From the American Society of Safety Engineers

THE AMERICAN SOCIETY OF SAFETY ENGINEERS TAKES GREAT PRIDE IN EXTENDING SINCERE CONGRATULATIONS ON THE OCCASION OF THIS HONOR AND RECOGNITION. NO GREATER POWER IS GIVEN MANKIND THAN THAT OF PRESERVING HUMAN LIFE. THE MANY MEN WHO NOW LIVE AND WORK AND THOSE WHO MAY IN THE FUTURE BE GIVEN THE GIFT OF LIFE BECAUSE OF YOUR CONTRIBUTION TO THE SCIENCE OF RESUSCITATION ARE THE FINEST POSSIBLE TESTIMONY TO THE SUCCESS OF YOUR TEACHING.

A. D. CADDELL, MANAGING DIRECTOR

From the National Safety Council

ON THE OCCASION OF YOUR RECEIVING AN AWARD FOR YOUR WORK IN THE DEVELOPMENT OF THE POLE TOP METHOD OF ARTIFICIAL RESPIRATION, I EXTEND THE APPRECIATION AND HEARTY CONGRATULATIONS OF THE NATIONAL SAFETY COUNCIL FOR THIS SPLENDID CONTRIBUTION TO LIFE SAVING TECHNIQUES. THE TWENTY-THREE YEAR HISTORY OF THE COUNCIL'S PRESIDENT'S MEDAL TELLS THE STORIES OF SOME OF THE MANY ELECTRICAL WORKERS WHOSE LIVES WERE SAVED BECAUSE A FELLOW WORKER HAD BEEN TRAINED IN THIS PROVED METHOD OF RESUSCITATION. THESE CASE HISTORIES ARE ADDED LAURELS FOR YOUR WORK.

NED. H. DEARBORN, PRESIDENT

The Key to Peace

By Clarence Manion
Dean of the Law School, University of Notre Dame

A digest of an address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 7, 1951

WE are at war. We have been engaged in this war for many years and we shall be involved in it for years to come. But this particular war is not with Russia nor with any actual or potential combination of foreign nations.

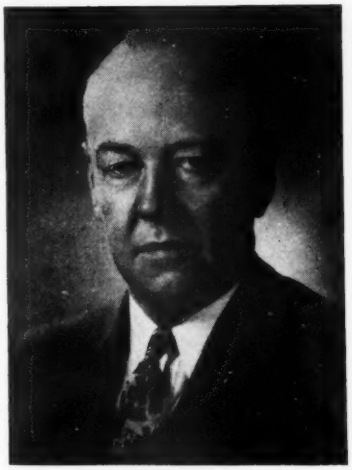
The war that is sapping our resources and threatening our existence as a free and prosperous people is a deadly conflict of ideas. It is a war for the subjugation and capture of the American mind and particularly for the minds of those young people of America to whom the future of our country belongs. We are losing this war precisely because we have been deliberately confused concerning its actual issues and the precise location of its important battlefields.

We are alarmed and excited about actual and potential military aggression throughout the world. These "alarms" and "excursions" are the genuine "red herrings." It is not these physical and forceful frontal attacks by the Iron Curtain countries that threaten our national life. It is not the Russian *aggressions* but the communist *professions* that have penetrated our defense lines and enervated our effective resistance to the enemy.

While we fight the fires of communist aggressions abroad, we have made the mistake of fanning the flames of communist professions at home. It is the growing strength of the communist professions here in the United States that will defeat us—if and when (God save the mark) we are defeated.

War of Ideas

This is only secondarily a military struggle. Primarily, we are in a war of ideas, a war between the vitality of constitutionally protected freedom on one side and the power of materialistic statism on the other. The communists understand their cause perfectly. They are out to reduce all humanity to the complete control of an all-powerful, Godless government. There is no confusion in their councils. To them, their clear-cut, diabolical end justifies any



DEAN CLARENCE MANION

trick or treachery, any promise or pretense, any means or measure, however criminal or scandalous, as long as it is calculated to achieve that end.

The communists will not openly fight for anything that they expect or hope will be handed to them on a silver platter. Remember that the communists took Czechoslovakia with Czechs—Roumania with Roumanians—Hungary with Hungarians—and China with Chinese. They have not yet given up their hope to take Italy with Italians and France with Frenchmen.

America on a Silver Platter

We have given them good reason to believe that they may eventually get America as the free gift of our confused, misdirected and sentimental American "intellectuals." The communists have no stomach for a strictly military conflict with the United States. They shrewdly observe that all of our potential strength is military and that all of our national consciousness is bound up with physical and geographical defenses. They likewise sense the now open secret that our great American ideology has lost its appeal for the great majority of our people and particularly for our youth.

As a nation and as individuals our instincts are now for "survival" merely, for "security," for holding what we have, with no general understanding of how we obtained these blessings or how they may yet be multiplied a thousand fold in future years. While we are in this unfortunate and defeatist state of mind, we can never hope to win the ideological war which we are now waging with the communists. To win quickly, decisively, and permanently, we must stimulate a renewed understanding of basic American principle and a revival of faith in the ability of that principle to conquer the mind of all mankind.

Key to Victory and Peace

Our key to victory and peace is to be found in the words spoken eloquently and officially with the first breath of the new life of the American Republic—The Declaration of Independence:

> We hold these truths to be self-evident that all men are created equal; that they are endowed by their Creator with certain inalienable rights; . . . that to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed.

In this spirit of faith in God and in the God-given freedom of every human creature of God, we won our first great victory, and in that same spirit we have won an endless series of triumphs in peace and war throughout the past 175 years. This is the imperishable principle that exalts man while it strictly limits government to the service and protection of man's freedom. This is the principle of our constitutional system which is the express restriction of government's power and which directs its purpose permanently and precisely to the ends described. Namely, the freedom of the individual.

In 1776 we gambled everything on the theory that a society of free and independent men would be the happiest and most productive society ever seen in the world. The historic bet paid off at the tremendous odds of one million to

one—not once merely but through every generation of our history right up to our very own time. We demonstrated that the self-government of each free man under the Ten Commandments of God was a better guarantor of peace and prosperity than all the benign, benevolent, or diabolical dictatorships put together.

Seed of Our Success

The seed of our success was in our American faith—faith in God—faith in the capacity of our people to govern themselves under God—and faith in constitutional limitations upon government. James Madison, The Father of the Constitution, stated that here in America we staked "the whole future of our political institutions upon the capacity of mankind for self-government." Our governmental structure was not designed to rule us around the clock from the cradle to the grave. It was not constructed as a source of welfare and cannot function successfully in any such capacity. In the American dispensation the people are responsible for the government, but the government was never intended to be responsible for the people. Where the government is made responsible for the people, the people become slaves, and the most complete system of human slavery is always to be found where the authority and scope and power of government is supreme.

Unless these fundamentals are as comprehensible now as they were in 1776, America is doomed. If our generation is unable to accept the basic morality and basic Americanism set forth in the Declaration of Independence, then we have already lost the ideological war with communism and should acknowledge that unfortunate fact without further loss of life. I happen to believe that those truths will be as acceptable now as they were in 1776. We now have abundant evidence to substantiate what the Founding Fathers, out of their great faith, held to be self-evident truth.

Practically all of the material progress of all time is crowded into the one hundred and seventy-five years of history that has elapsed since our Declaration of Independence was written, and practically all of this progress has occurred here in the country for which and by which that famous declaration was made. By these fruits the seed of God-given human freedom is justified.

Misguided education has lately led our people to believe that progress and happiness are somehow bound up with an expansion and centralization of governmental power. It is precisely the strong current of this poisonous doctrine that has exposed us to the subjugation of our communist enemies. These currents can and must be reversed. In this critical battle for the minds of men, we have all the weapons on our side if we only dare to use them with the courage, faith, and force of those who forged them for us in that critical hour when the United States was born.

The destructive flames of socialization have been eating into the solid constitutional structure of American liberty for more than a quarter of a century. Meanwhile, the advocates of personal independence and private enterprise have been frantically pouring water on those segments of the fire that seem to scorch their own selfish interests. The time has come to recognize the fact that the protective citadel of our freedom cannot be saved by these tactics. Nothing can stop the fire now except a change in the direction of the wind. The currents of American thought must be quickly and fundamentally reversed. We must stop the time-honored stampede toward government for the relief of all of the illnesses that occur in our social and economic system. We must revive the ancient respect for American self-government and self-restraint as prescribed in the Ten Commandments.

The President's Address

(*Continued from page* 210)

symbol to the public today than it was two years ago. I am convinced the people will support the utility industry against unfair encroachment if we can give them the facts.

I cannot conclude this talk without passing on to you a personal observation on my experience of the past year. I never realized, until I served this term as president, the scope and value of your EEI. It is a solid organization and, over the years, its contributions to our industry have been immeasurably valuable. Too long, I believe, have we taken for granted the work of the Institute, its most able and lovable managing director and his efficient staff. There are no trade secrets in our industry; one of the fine services performed by EEI is its thoroughness in making available to everyone in the industry the accumulated knowledge and the specialized skills distilled from the collective experience and ideas of the various companies and of related industries.

My service as your president has been to me a most revealing experience. It has made me prouder still of the electric utility industry. It has heightened my admiration of those who comprise it. It has made me more appreciative of the fact-finding agency which it has created. To me, the electric power industry is a truly American industry, established and operated in the most admirable tradition of free and resourceful endeavor and an example of why America is the most productive and prosperous country in the world.

I would be remiss indeed if I concluded my address without expressing my hearty appreciation of the cooperation which I have received from so many quarters. Many of you have accepted time-consuming committee assignments which you have performed with signal ability and fidelity. The members of the staff have been most capable and industrious in the indispensable services which they have rendered. The directors have been sage in their advice and faithful in their attendance of board meetings. I thank you all. If any achievements for the electric power industry have fallen into my administration, the credit belongs to others.

Difficult days lie ahead for our nation. By making impregnable the ramparts we watch, our republic hopes to avert for itself and civilization the unspeakable agonies and devastation of another world war. Unfortunately, the issue of war or peace does not rest with us. In large measure it lies with the men of the Kremlin.

The electric power industry is one of the bulwarks of this republic. We believe that it is all the stronger bulwark because it is cradled in the American tradition and rests largely upon the system of free enterprise.

As the nation bends its strength to the vast defense undertaking upon which we are launched, I pledge to it in your name the full resources of the electric power industry. I do not believe that we will be found wanting in any proper test to which we may be subjected in the nation's perils.

A Look at Tomorrow

By J. W. McAfee

President, Union Electric Company of Missouri

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 7, 1951

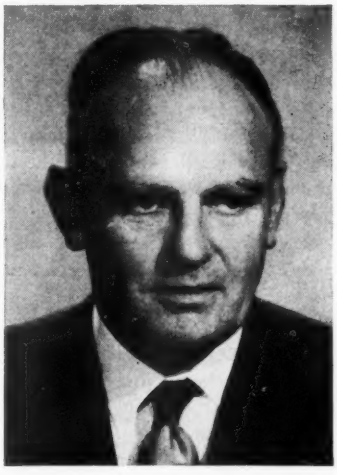
LOOKING at tomorrow is a pastime which has fascinated man throughout his history. There are many reasons for its popularity, but the one which has impressed me most is the opiate effect of dreaming and planning and predicting for the future. No matter how painful today may be, there is always a brighter tomorrow. And even if today is a good day, we need and enjoy the assurance that the good will continue.

I mention this because we cannot talk about tomorrow in our industry without reference to the nation and the world in which we exist. And I want to recognize, for our particular nation, at this particular moment in world affairs, that the opiate of discussing the future may be losing some of its power to satisfy. When we think of tomorrow in terms of international events, the alternatives which have been predicted are not likely to give many of us a sense of well-being and happiness.

Basis of Predictions

I mention it, too, because I am an inherent optimist, and my remarks on this occasion will be generally optimistic. Yet, I do not want you to leave with the feeling that the imminence of world catastrophe has been ignored. The predictions and the problems for the future of our industry, which I am about to discuss—as, indeed, have all the predictions you have listened to and read about in the past few years—do not consider the effects of a total World War III or any other catastrophe of similar proportions. They assume a continuance of our present mobilized economy.

In my judgment, this is not a false assumption based on false optimism, or on a kind of opium thinking. We have an obligation, a particularly powerful obligation in our business, to plan for tomorrow and to prepare now for the problems we may face. If we are to make full preparation for a full contribution, we should not formulate our predictions and our planning in an atmosphere of hysteria or defeatism or even cynicism.



J. W. McAfee

In my judgment, our very optimism generates a positive approach to affairs that is more likely to bring positive results. Even should history prove that the cards are stacked against us—and we had the all-seeing ability to realize that now—it would still hold true that confidence and positive thinking today are our best preparation for the events of tomorrow.

In this industry, certainly, past history has proved the value of such a philosophy. There are many of you who were associated with the electric utility business 30 years ago, at the close of the first World War. I wonder how many were confident, then, that the electric load of this nation would double in the 20's, increase nearly 60 per cent in the depression 30's and double again in the 40's. It is truly an amazing record. And it is a record which could not have been achieved without optimistic thinking in the building for each period of growth.

Today, we are talking in terms of nearly doubling the 1950 load by 1960. By 1965, if our analysis of the future is correct, America's peak power load will be in excess of 165 million kilowatts.

We are a growth industry. We have achieved maturity, by modern industrial standards, without ever having lost our growing pains, and it does not look as though we are going to be without them for some time to come.

When will it all stop? What, in other words, is the maximum market potential for our product? I have never heard or seen those questions answered adequately without suddenly freezing, for the purpose of developing such an analysis, all the factors which determine our growth. The result, then, is of very little value.

It must assume, for example, a certain level of appliance efficiency and of customer need and desire. But we know that the efficiency of that appliance may change, thus lowering its individual demand on our systems but increasing its total market. We know, too, that new appliances, new uses, new developments will come along to again alter the horizon of maximum market potential. Our market potential is one thing today; as the factors change, it becomes another and a greater thing tomorrow.

Immediate Potential

Under such conditions, it seems to me entirely logical that we ignore the ultimate horizon and concentrate on the possibilities immediately ahead, in the next ten to 15 years. Taking into account all factors we are presently able to measure and predict, our industry generally has reached the conclusion that by 1965 we will be producing nearly 750 billion kilowatthours, selling nearly 650 billion, with a total plant capacity in excess of 195 million kilowatts, handling peak loads of 165 to 167 million kilowatts. If that is our immediate potential, and it seems a reasonable one, then what are some of the specific factors and directions and problems with which we should be concerned in achieving and supplying it?

We are assuming, for example, substantial increases in load resulting from new uses of electricity, such as house heating, the heat pump, television, high-frequency heating, and others. Can we over-sell in any one category? Is there a point beyond which the use of an individual appliance or piece of equipment works to the detriment of the customer, or the industry, or both?

Space heating is a case in point. We have felt reasonably certain that the invasion of electricity into the field of home heating depends largely on the continued development of the heat pump. In cold winter climates, at least, we have felt that there were elements of danger in actively selling space heating because of the cost factor for the customer. We also have had fears for the industry, for a wide application of this use brings visions of drastic effects on load factor, on transmission and distribution systems, on the entire concept of residential service.

Popularity of Space Heating

Now we are witnessing, in some areas, a customer acceptance that is startling. There are more than 200 completely space-heated homes in our territory and, despite an unusually rigorous winter, our survey of these customers reveals that more than three-fourths of them are well-satisfied with their installations. The factor of cost apparently has been outweighed by comfort, safety, and cleanliness. If such a trend continues, the problems of space heating may be at the industry's doorstep; more than that, they may be crossing the threshold.

Yet, I do not share the fears that this may not be good for the industry. I firmly believe that if any use is in demand by our customers, we will be ingenious enough to supply it, regardless of its requirements in financing, in building, even to the extent of creating a demand charge for home electricity. We will be ingenious enough to supply it under conditions that will extract the maximum possible benefit for both the customer and ourselves.

Although it is residential growth that holds the most value for us, it is in the field of industrial sales that we can make our most significant contribution to ease the current strains on our national economy. You know the history of power for industrial advancement as well as I.

Power for Industrial Advancement

Fifty years ago the average American workman used an estimated one-tenth of a kilowatthour of electricity per man-hour. At the end of World War II, this had increased to nearly five kilowatthours per man-hour, and today it is estimated that the average workman in our country is using at least 6.75 kilowatthours per man-hour. This has meant, in terms of the capacity of the individual worker to produce, that American industry has added the equivalent of 1,500,000 production workers over the peak war years.

The mechanization and increased utilization of electricity in industry is certain to continue. Indeed, it is an economic necessity for American industry. For most companies, under the pressures of high wages, inflated material costs, and high product demand, it is mechanize or die.

Moreover, since a continued increase in production per unit of human effort is the only path to higher standards of living and, in these times, the only method whereby we can hope to satisfy both civilian and military needs, the complete pressure of national thought and desire is behind the mechanization trend.

The increase in our industrial sales over the coming decade is also based on the bright growth prospects for five major power-consuming industries—steel, paper, non-ferrous metals, petroleum and coal products, and the chemical industry. All of these industries use huge blocks of power. While the growth index for American industry is predicted to reach 230 by 1965, based on the 1935-39 average, the index for these five industries is expected to top 320.

We are talking, of course, about our most competitive category of sales. Yet, I believe we can take an optimistic view over who is going to supply the substantial increases in large light and power demand. We are going to do it.

In other words, I do not believe that the isolated plant is going to be a major problem for the future. It isn't a question of producing a kilowatthour cheaper. In an era of tremendous industrial growth, the question for the average industrialist is how he can most efficiently use his capital. His problem is to expand, to increase production. If 60 cents of invested capital in production machinery will give him one dollar in annual sales, he will think long before building his own power plant, because, in effect, he will be investing five dollars to gain a similar result.

Aside from that, he also knows that his isolated power plant will be of value only to the extent that he can use the electricity produced. He is in no position, such as we are, to easily assume the risk of curtailment. We, at least, can sell elsewhere, or we can close down older, higher-cost generating units. But if the individual industrialist suffers a drop in demand, his isolated plant becomes dead weight.

When we approach the subject of our industry's capacity to meet the future, I think it is a tremendous compliment to our efforts over the past decade that today there are far fewer dire prophets of shortage. An outstanding job has been done all along the line. When we entered World War II, the manufacturers of generating equipment in this country had an annual production capacity of less than 3,500,000 kilowatts. Today, they can produce at an annual rate in excess of 8,500,000 kilowatts, and they expect to step this up to 12 million kilowatts by 1952.

Generating Capability

The nation's generating capability last year was 71,100,000 kilowatts, providing nearly an 11 per cent margin over peak load. In 1954, generating plants contributing to the public supply of electricity will be capable of carrying a load of 102 million kilowatts. With an expected peak of 86 million kilowatts, the margin will be 18.6 per cent.

This peak of 86 million does not, of course, contemplate an all-out war. But we are in better shape today for such an eventuality than we were in 1940. Our available capacity is about 70 per cent greater. We are adding to that capacity faster. Our equipment is newer, more efficient, and it can handle greater overloads for longer periods without undue risk to continuity of service. Today, almost a third of our capacity is less than five years old; ten years ago, only 14 per cent was less than five years old.

The interconnections between systems have been expanded, to the end that each kilowatt of capacity is more effective over a wider area. In addition to all this, we have the experiences of World War II behind us, and they gave us many lessons in how to obtain and sustain capacity where we once thought it did not exist.

Ready for Tomorrow

Yes, we are as ready as any industry, and more so than most for whatever tomorrow may bring. We have no conversion problem. A kilowatt has no conscience; it can help produce, with equal facility, an airplane or an automobile, a gun turret or a refrigerator.

There is a quality about the management of our industry, too, that bears comment. We have achieved progressive flexibility in our thinking and planning,

an attitude that expresses itself in ready willingness to change, to expand, to raise our sights rapidly to meet new conditions as they appear. At the end of 1949, there were 26 million kilowatts of new capacity definitely on the planning boards. Today, there are 41 million—23 in the years through 1953, 18 in the years immediately following. In one year, the sights had been raised by 15 million kilowatts (*Electrical World* estimates).

If you examine the planning for new capacity, you will note that private power dominates the building picture. However, starting with 1952, government new capacity looms larger, proportionately. But it is one of the great advantages of private enterprise that we do not have to solidify our projections. If, by 1953 or sooner, the indicated future load calls for greater building than we now plan, we will build.

None of this discounts the possibility of local shortages, resulting largely from spectacular defense demands. Yet, our tradition of speed may be adequate in those instances, too. I was privileged to have a part in the negotiations for one-half of the million kilowatt load which will be required by the Atomic Energy Commission's new gas-diffusion plant at Paducah, Ky. The ability of private power companies to acquire and supply one-half of that tremendous load is a clear example of the ability of our industry generally to meet and serve the nation's needs.

Expansion of Interconnections

There are some additional factors for tomorrow in discussing how the power demand of that day will be met. We can look forward to a continued expansion of our interconnections between systems and to higher transmission voltages. In turn, these new interconnections should have a favorable effect on both load factor and reserve. The trend for the next few years indicates slightly lower load factors but, through efficient interconnection of systems, by taking advantage of the diversity of different areas of service, we can perhaps slow the trend.

Our concept of reserve is changing. Some standard will always be necessary for continuity of service but, for that alone, we will require less reserve as time goes on. Our reserves will be needed more for anticipatory growth than for service continuity.

Of course, in order to maintain the growth pace which we have set for ourselves, we are faced with the problem of raising huge sums of money. Financing will continue to occupy a major share of our efforts.

Our industry has certain obvious advantages for the investor. We can offer him security, plus growth. We can offer the record of the immediate past, in which the industry survived the impact of World War II taxes, with only a slight reduction in net income, and absorbed the impact of postwar inflation with substantial increases in both net and in dividend payments. We also have the current advantage of intelligent Congressional treatment in the new excess profits tax.

Need for Rate Adjustments

In many instances, however, as determined by the course of inflation in this country, we may need rate adjustments in the future to sustain an adequate return—to sustain a healthy, competitive position in the financing market. At the present moment, our capital ratios are generally in good shape. Yet, all indications point toward an increased cost for debt financing; as government interest rates inch upwards, ours will be forced ahead also. An increased cost for money, plus additional inflation in other categories, may well call the turn.

It is in the public interest for a public utility to take advantage of building for the future, of being always one step ahead of the community's requirements. We cannot do this without a sound and attractive position in the money market. It is, therefore, a fundamental public relations job to gain support and understanding for the inseparable connection between the two.

Utility Regulation

This leads immediately to a consideration of utility regulation. I think we need to go back to a restatement of the basic reasons for the regulatory process. For the electric utility business, public interest and welfare dictated the necessity for one source of supply. The prices and rates of other types of business, in normal times in our economy, are regulated by competition. In the utility business, then, proper regulation of price is simply and only a substitute for that competition. A regulated rate should be set at the level which would exist if the utility had open competition in the sale of its product.

In other words, no matter where you start—whether from an analysis of the basic reasons for regulation, or from the public's selfish interest in maintaining an atmosphere for sound utility financing—the obligation of regulatory authorities to provide fair treatment is inescapable.

As members of utility management, we, too, have an obligation in this regard, and one, incidentally, that is over and above a public information program to gain widespread appreciation for proper regulation.

There is great value, I believe, in accepting and practicing the managerial philosophy that we should approach our three-fold financial responsibility in the most positive manner. As we enter labor negotiations, we, management, should hope to provide the highest figure we possibly can, not the lowest we can get away with. As we consider rates, we should hope to provide a better bargain for our customers. And, as we consider investors, the question should be not how small a yield, without losing their support, but what is the best we can possibly do.

Task of Balance

Obviously, of course, good management is not one that becomes a hero at the expense of public interest and welfare. Ours is a task of balance. The management that provides too much to any group, whether customer, employee, or investor, is creating a condition that will ultimately destroy the financial ability of that company to grow and, thus, to properly serve.

In general, the great problem for our industry in the past two decades has been its public relations, and largely as it has been interpreted in political terms and political acts. We have had some basic handicaps to good public relations. One of them, which will be with us always, is the factor of exclusive supply. The American people simply do not like to "have to" do anything.

We have been giving major attention to these public relations handicaps and problems, and there is no indication that the attention is slackening. Thus far, progress has been slow. I sincerely believe there is more recognition, throughout the public, of the industry's accomplishments, but we still have a long way to go.

I predict, however, that our progress in public relations accomplishment will accelerate. We will begin to experience the growing cumulative effect of the information and the knowledge which has been disseminated and of the many friends which we have made.

The interest of labor in the industry's problems is a heartening case in point. Only a few months ago, at a utility personnel convention in New England, Dan Tracy, international president of the IBEW, had this to say: "It is my purpose. . . to bring to your attention some of the hard facts which show clearly that expansion of the public power program represents a direct threat to the very existence of organized labor in this industry. . . The experience of the IBEW with the destructive effects of the public power program on its interests has convinced us that we must extend every effort to retard and ultimately stop the present expansion of the public power program."

Yes, we are gaining friends in many fields. One day, the accumulation will make our efforts worthwhile.

Overcoming "Isolationism"

As a matter of fact, while we are on the subject of friendship, we also are gaining them within our own industry. Years ago, our various managements were characterized by what might be called "isolated" or "provincial" thinking. In each company, we were influenced, particularly in the field of public relations, largely by the conditions existing in our service areas. There was not as much interchange of ideas, not as much cooperative effort, as in other industries. We are overcoming this isolation. We now have some outstanding examples in our various associations, through ECAP and other media, of excellent cooperative programs.

System interconnections are drawing us closer together as an industry, making more of our problems common problems. Electric Energy, Inc., the joint project of five different systems to supply atomic energy power needs, is still another example.

Altogether, this is a good trend. It should be continued and expanded. A development like the formation of Electric Energy is also an indication, a forerunner, of other great opportunities that lie before us—particularly, I feel, as we proceed further into the great chemical and atomic eras.

Even though we do not yet know when, or in what specific form, we cannot escape the conclusion that the world eventually will be powered with energy released by fissionable material. The possibilities are too great, too dramatic to be ignored.

We should have no worry in this regard. This change, like every great change in history, will come slowly. Atomic power will creep down to where it is competitive, and, even then, equipment on hand will be of value for a long period. Remember that though the machine eventually turned the last Old Dobbin to pasture, it was a process that took many, many years.

Development of Atomic Energy

As a power supply, atomic energy must experience two great periods of development. The first is finding the right method to produce power. The second is the gradual supplanting of existing sources of power supply. We are a growth industry. When atomic power supply comes, we will take it in full stride.

In summary, gentlemen, I am confident for tomorrow, for the immediate tomorrow of our industry, and for the years that follow.

There is, unfortunately, the great cloud of statism to reckon with, and it involves a battle that could well be lost on fields other than that of private versus public power. Our objective has been to inform the people of this nation that it is neither good for the government nor for the people to socialize. We must persevere in the effort, regardless of where the next move to socialize may strike. The American people have a natural resistance to statism. We must continue to let them know that individual moves in that direction can accumulate to take the power of ultimate decision from their hands.

It is accepted economic theory that when government controls one-third of a nation's wealth and takes, in taxes, 30 per cent of its national income, then complete statism is inevitable. It is then that the nation has reached the point where private enterprise has lost too many managers, too much capital, too much of its ability to raise capital. It can no longer function with vigor and effectiveness. The entire system of private enterprise must pass.

Crucial Point

We are moving to that crucial point. If we lose, so will we lose the bright prospects that are before us.

Yet, although we know this can happen, we cannot help but look at America as a whole, and our industry in particular, without feeling it will not come to pass. The growth which our industry has achieved, the great gains which it anticipates in the future, the magnificent talents of the people in our companies, all these things give us the faith and the courage for tomorrow.

In such a mood, I would like to close by reading a passage from a speech by Oliver Wendell Holmes. This was written in 1913, nearly 40 years ago. It is clear evidence that a true concept is immutable:

"If I am right it will be a slow business for our people to reach rational views, assuming that we are allowed to work peaceably to that end. But as I grow older I grow calm. If I feel what are perhaps an old man's apprehensions, that competition from new races will cut deeper than working men's disputes and will test whether we can hang together and fight; if I fear that we are running through the world's resources at a pace that we cannot keep; I do not lose my hopes. I do not pin my dreams for the future to my country or even to my race. I think it probable that civilization somehow will last as long as I care to look ahead—perhaps with smaller numbers, but perhaps also bred to greatness and splendor by science. I think it not improbable that man, like the grub that prepares a chamber for the winged thing it never has seen but is to be—that man may have cosmic destinies that he does not understand. And so beyond the vision of battling races and an impoverished earth I catch a dreaming glimpse of peace.

"Above the Electric Lights, the Stars"

"The other day my dream was pictured to my mind. It was evening. I was walking homeward on Pennsylvania Avenue near the Treasury, and as I looked beyond Sherman's statue to the west the sky was aflame with scarlet and crimson from the setting sun. But, like the note of downfall in Wagner's opera, below the sky line there came from little globes the pallid discord of the electric lights. And I thought to myself the Gotterdammerung will end, and from those globes clustered like evil eggs will come the new masters of the sky. It is like the time in which we live. But then I remember the faith that I partly have expressed, faith in a universe not measured by our fears, a universe that has thought and more thought inside of it, and as I gazed, after the sunset and above the electric lights there shone the stars."

Targets for Tomorrow

By Chester H. Lang

Vice President, Manager of Apparatus Marketing, General Electric Co.

An address before the Nineteenth Annual Convention of the Edison Electric Institute, Denver, Colo., June 7, 1951

I'VE attended quite a few of these EEI conventions in my day, but I'm still impressed. When one hears the tremendous plans and projections for the future, and contemplates the incredible range of human activities that depend in some measure on electric power, one is tempted into delusions of grandeur.

You may have heard the report of a psychiatrist who was interviewing patients in the booby hatch. He asked one of the characters, "Exactly why do you think you're destined to save the world, my good man?"

With a dedicated look, the patient quietly announced, "God told me!"

At this there was an angry scream in the next cell, and a voice shouted out, "I did not!"

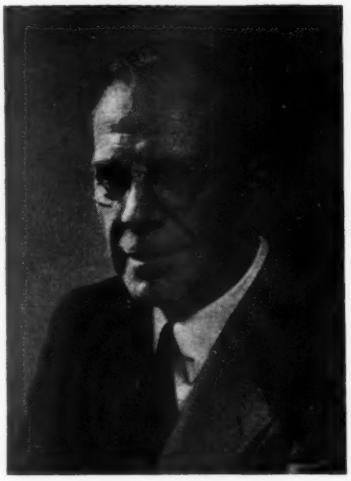
I cite this interesting case as a sobering preface to the rest of my remarks, which at times may border on the enthusiastic. If I tend to overstep in this direction, please credit the error to my strong emotional bias in favor of our common calling. While I have no illusions that our electrical industry is destined to save the world from its compound follies, I most certainly believe that we have very heavy responsibilities in the future course of history.

Some of the other speakers (notably Mr. McAfee) have eloquently delineated the broad scope of these responsibilities, but I should like to confine my remarks to just one area: industrial electrification.

Industrial Electrification

In this field the electrical industry has demonstrated decisive new qualities of leadership in the postwar years. Even before the present mobilization program put such urgency in the drive to greater productivity, the utilities and electrical manufacturers had informally, but none the less decisively, determined to make America more productive. Today, there is no group, in or out of the government, which is doing more to force the pace of capital investment and plant modernization.

Here, it seems to me, is business leader-



CHESTER H. LANG

ship in its highest form—socially responsible, in the national interest, yet fully consonant with free and competitive enterprise. It is dynamic capitalism at its best, an example for all the world.

But perhaps we'd better climb down out of this rhetorical stratosphere, and get specific. How has the electrical industry demonstrated its leadership in this vital field of industrial development? In two ways: first, by its own spectacular example; and second, by a series of industrial electrification programs that sprang up, quite spontaneously, after the last war.

They say the best way to teach is by example. And in this respect, the utility industry is second to none as a teacher of dynamic capitalism. Since the war, the private utilities have invested more than eight billion dollars in new plant and equipment and expect to push the total to 15 billion in the next couple of years, by far the largest capital expansion ever carried out by any single industry in so short a time. Yet this is the industry that was called moribund! This is the industry that some people wanted to bury in the shrouds of nationalization!

It is not possible to reckon the precise effect of your courageous example on your industrial neighbors. But we do know that the patterns of investment in any town are generally set by the example of its business leaders. And I don't think there is any doubt that the confident, almost headlong expansion of industry in these postwar years is to some degree a reflection of utility leadership.

In the same way, the electrical manufacturers are also setting a confident example with their expansion programs. Only a few years back, there were many who wondered how General Electric ever expected to keep that new $30,000,000 turbine factory busy in Schenectady. But just the other day we decided to add a wing to it, to help handle our schedule of 74 turbines in 1952.

To a certain extent, just about any industry in America could make this same claim that it encouraged capital expansion in other industries by its own example. And one couldn't argue the point.

But there is one aspect in which the electrical industry has been unique in this postwar period. No other industry has undertaken organized programs, aimed at the modernization and expansion of all American industry. I'm not sure we have all been conscious of the size of this trend ourselves.

"Information Mobilization"

It has been going on under many names: load-building, market development, power application, industrial sales. But taken as a whole, these programs are all aimed at communicating electrical ideas to businessmen. They are an attempt to force the pace of electrification by a sort of "information mobilization."

Some of the best of them have been solo operations by local utilities. I hesitate to mention any, for fear of overlooking others equally as good. A man must be careful on this rostrum.

There have also been industrial development programs on a regional basis, and the Power and Heating Committee of EEI has been doing much on a national scale.

Another interesting development, and one on which I might be better qualified to comment, is the type of cooperative program which is represented by Westinghouse Productive Power Program and General Electric's More Power to America. These programs are without exact precedent in any industry. If you will permit me one of those moments of unvarnished enthusiasm I warned you about at the beginning of this talk, I think we are dealing here with a significant new step in the development of industrial capitalism. These cooperative programs point the way to new levels of coordination within the framework of a fully competitive economy. I don't say the millennium has come, but these cooperative programs point the way.

Oliver Wendell Holmes once said, "No generalization is worth a damn, including this one." Therefore, I should like to give you a specific report on the More Power to America program, after its first five years of existence, and then perhaps we can draw some lessons from the experience that will help us set up some targets for tomorrow.

More Power to America

More Power to America is a long-term program which was undertaken for the benefit of everyone in the electrical industry, and that includes not only the electric utilities, but also our competitors in the manufacturing field.

The program was first announced publicly in Atlanta, in late 1944. At that time, with a considerable flourish, we sketched the great vision of a "well-directed, well-equipped, and well-organized cooperative program having a single aim—to speed the electrification of American industry." The program was designed to coordinate the sales efforts of utilities, manufacturers, consulting engineers, contractors, equipment dealers, and any other logical allies in particular fields of electrification.

In the original presentation, General Electric promised to supply the following tools to do the job:

1. A series of market development programs on electrification subjects.
2. A special magazine for power salesmen.
3. Regional power conferences.
4. Operating product exhibits.
5. Promotional programs addressed to power customers.
6. More man-hours from G-E engineers and product specialists.

I should like to give you a report on our stewardship in these areas. First, the programs. Today there are 20 programs in the More Power to America library, consisting of films and technical literature.

These programs were carefully developed and received by the best experts in the field, including individual utilities, the Power and Heating Committee of EEI, and industry associations. They honestly represent the latest and the best in electrical practice, and steer clear of private pleading, even for the monogram I know and love.

Most utilities are using a number of MPA programs, and quite a few have a policy of automatically purchasing all of these programs as fast as they come out. There is no time for me to regale you with reams of results, but here are a few ten-second samples.

An oil company executive, after seeing the MPA film, "Lease on the Future," became interested in automatically-timed electric pumping. The net result was the electrification of 200 wells on his property.

The manager of a southern textile mill ordered a million-dollar modernization of his mill. He delivered his general specifications by presenting his staff with a copy of the MPA textile manual, as a guide to what he wanted.

Voters in the city of Spokane, Wash., had defeated a sewage disposal program three times over a period of years. Undaunted, the city fathers sponsored community showings of "Clean Waters," a prize-winning MPA movie. Result: on the next ballot, voters overwhelmingly supported a $3,700,000 program to clean up the rivers in the area.

Magazine for Power Salesmen

Our second promise, back in 1944, was a magazine for power salesmen. Most of you have seen it: *Load Magazine,* which goes to 6000 power salesmen. Earl Kavanaugh, the power sales manager for Detroit Edison, had this to say: "Of the dozens of magazines that land on my desk, *Load* is the only one I read cover to cover. I like it because it offers information in an interesting manner without selling me a bill of goods."

Third promise, regional power conferences. Well, there have been about thirty, to date, in every part of the country. The next one will be in Dallas, on June 27.

There are two kinds of power conferences, both very productive of action in industrial development. Some of them are meetings between utility power salespeople and the electrical manufacturer, for the purpose of exchanging ideas on electrical processes. But recently we have had a fine flurry of customer conferences, where the utility and electrical manufacturer play host to local industrial executives. The general procedure is to put on a regular one-day electrification show, including exhibits, demonstrations, discussion panels, and some free periods of highly informal shop talk.

They have gone over big in New England, where the pattern was first established. But if you would like a hot-off-the-griddle report, you might talk to the delegates from Public Service of New Jersey. They just finished a series of six of these co-sponsored customer conferences that carried them from one end of Jersey to the other with a truckload of exhibits and a panel of speakers from Public Service and General Electric.

Product Exhibits

The fourth promise in the MPA platform was operating product exhibits. The most dramatic example is the ten-car More Power to America Special that's been on the road for a year and a half now.

When this greatest exhibit train of all time winds up her tour at South Bend, Ind., she will have brought electrification ideas to more than 200,000 carefully selected industrial, utility, government, and civic leaders.

This is a good place for me to express my company's appreciation for the splendid cooperation we have had at every stop from utility people. With your help, the train became a showpiece for the entire electrical industry.

Just last month, the manager of our Salt Lake City office received a very generous letter from your program chairman, George Gadsby. I wonder if George would mind if I were to enter a part of that letter on the record. He said, "This train is accomplishing a double purpose: first, it demonstrates in a breathtaking way the miraculous achievements in the design and development of utilization and control equipment; and second, of even greater importance, it is an impressive demonstration of the fruits of American ingenuity, operating in the atmosphere of a free enterprise system. No thinking person

. . . can fail to come out of the train with an uplifted sense of pride in the achievements of a company with the courage and vision to bring to the people of the world 2,000 exhibits of such technical devices contributing to the welfare and better living of all our people."

You are very kind, George, and I would have come all the way to Denver just to shake your hand for that letter. But I must report that the MPA Special was a showplace for the entire industry, of which we are proud to be a part.

Promotional Programs

Promise number five was that our company would produce promotional programs directed to power customers. Every medium—direct mail, space advertising, booklets, and news publicity—has been used to support your activities in industrial electrification. Some of this material, such as the mailings in support of the textile program, have won prizes in the advertising field. Not for looks, but for sales results.

And finally, we promised more man-hours from G-E engineers and product specialists. The techniques of cooperation can't be learned overnight, but we have come a long way by working together on power conferences, visual programs, and the More Power to America Special.

So much for procedures. How did we all make out? Obviously, America's great expansion in the past five years is not just an electrical industry achievement. To a large degree, America was making up a big deficit in capital expenditures. But industrial development programs, such as More Power to America, created the climate for confident investment, and then steered much of that pent-up purchasing power into electrical machinery and power.

Bigger Piece of Pie for All

Back in 1946, one of my colleagues used the analogy of a cherry pie to illustrate our MPA objectives. He said, "Let us imagine that the small pie in the background is total available business. By high-pressure competitive selling we might cut ourselves a slightly larger piece of pie, but somebody is going to get a smaller piece, and maybe some little fellow will get none. The obligation of leadership, as we see it, is to increase the size of the pie so that everybody may get a bigger portion." Well, let's see what happened to the pie in the period from 1945 through 1950.

Business expenditures for plant and equipment jumped from 6½ to 20 billion. Here is a bigger pie for everyone in the capital goods business, and more productive capacity for America at a time when she desperately needs it. In the same period, power output went up from 269 billion kilowatthours in 1946 to 388 billion in 1950.

Utility revenue rose from 3½ billion to 5 billion dollars. These are general measures of the increased market for power and electrified machinery. What has this meant to American productivity? You may remember that we set up a goal, for the first five-year period of MPA, of one more kilowatthour per man-hour by 1950.

Here is an exact measure of the electrical content of American productivity. We aimed for one more kilowatthour, but actual performance resulted in two more kilowatthours per man-hour! This is all the more impressive when you realize that the figure had remained just about static for the six preceding years. At no time in history have we had such a rapid rise in the amount of electric power going into each unit of production.

History to Be Made

There is a lot of history still to be made in this industry. We have only begun this business of industrial electrification. The More Power to America program, for one thing, will be continued without letup in the years ahead. There will be new market development programs every year, more exhibit materials, more power conferences, and a few aces that we don't care to turn face up, just yet.

Regardless of what name you give to your particular program of industrial development, if indeed you give it a name at all, here are the essential lessons that seem to rise out of the experience of the post-war era:

Industrial electrification requires a continuous, well-planned program with long-range objectives. This is market development—planting the business seeds that will sprout in the lean and the full years ahead. Our efforts must be aligned with our long-range objectives, rather than our day-to-day sales requirements.

Industrial electrification thrives on co-operation. Some said that utility-manufacturer co-operation is only possible with ranges and lighting and so on, that the industrial field is different. Well, it's different, all right. It requires more co-operation, because of the larger amount of technical knowledge required to assure a practical installation, and because of the larger expenditures involved.

Industrial electrification responds to bold experimentation in techniques. Five years ago, the idea of promoting industrial power with motion pictures, customer conferences, and a ten-car train sounded like the ravings of a glamor-blinded ad manager. Today, these things are proved and accepted technique. This is the new age, the age of conscious, deliberate industrial growth. The electrical industry has come up with the most imaginative techniques yet devised to stimulate industrial growth, but we can't settle back in the cushions. We must continue to experiment boldly, and give support to the daring men in our organizations, if we are to remain at the forefront.

Management Support

Industrial electrification must have the wholehearted support of management. And I don't mean just lip service. This calls for a sizable investment of money, not only in a well-rounded library of industrial sales tools, but even more important, in high-caliber men who can think big and act decisively.

We can't plan timidly. We must load the heavy guns, and aim high—aim ahead. What are the targets for tomorrow, in industrial electrification? Each local property must set its own goals, in terms of its biggest potential. But here are some targets we can shoot for as an industry, in a mutuality of enterprise.

A hundred billion dollars in business expenditures for plant and equipment, in the next five years! As a matter of fact, that conservative sheet, *Electrical World*, estimates that the country may put 114 billion into plants and equipment in the next five years. As long as the country is going on a buying spree, let's see that they "buy electric!"

Exceeding the Estimates

Ten kilowatthours per man-hour by 1955. This goal exceeds the most hopeful estimates, even based on present accelerated rates of electrification. But we doubled the most hopeful estimates in the past five years.

A 15 per cent increase in productivity—output per man-hour—by 1955. They tell me that this is the figure that some prominent electioneers have been using

(*Continued on page* 255)

Accident Prevention Committee Meeting

W. T. Rogers, *Chairman*

ON May 21 and 22 the Accident Prevention Committee convened at the Hotel Utah in Salt Lake City. This 47th meeting of the Committee was one of three that have been held west of the Mississippi River. The Utah setting favored the attendance of westerners, and of the 60 members and guests present, more than half represented Far Western or Pacific Coast organizations. Sessions of the meeting were devoted to reports, discussions, and illustrated presentations of subjects concerned with the prevention of loss of life, suffering, and property damage in the electric utility industry.

The opening address of the meeting was delivered by R. H. Ashworth, vice president, Utah Power and Light Co. After commenting on the safety program of the Utah company, he stated that in his opinion the Accident Prevention Committee is quite likely the most responsible committee in the industry, since its work deals with the lives and welfare of men and their families.

Accident Statistics

H. J. Crisick presented accident statistics of the industry for the year 1950 and called attention to the progress made in reducing the frequency and severity of accidents as shown by the following comparison with data for 1949:

	1950	1949
Frequency Rate	11.96	14.02
Severity Rate	1.96	2.37
Fatalities	135	167

The chairman reported that he had appeared before a meeting of the Board of Directors of the Edison Electric Institute on March 15, 1951. The Accident Prevention Committee was gratified with the interest of the Board and their action in behalf of the committee's purposes. The Board approved an appropriation of $11,700 to be expended at Johns Hopkins University in a research project on electrical resuscitation. The program will include work on the development of a portable apparatus to be used for the purpose of restoring normal heartbeat to electrical shock victims suffering ventricular fibrillation.

A. L. Dowden of the Visual Aids Subcommittee presented a premier showing of the sound slide film "Coal to Kilowatts." This picture has been designed to encourage safe working practices among the employees of coal-burning, steam generating plants. Photographs submitted by committee members were used in the film's preparation. The production is particularly effective since potentially hazardous situations common to all coal-burning stations are graphically illustrated.

An interesting symposium on safety training was conducted by J. G. Dickinson. The discussion was highlighted by papers presented by E. E. Beck, A. S. Hancock, and R. E. McCann. Mr. Beck described the safety training activities of the Idaho Power Co. This company's safety program begins during the pre-employment interview, at which time the prospective employee observes printed slogans indicating that Idaho Power is interested in employing only safe workmen.

Mr. Hancock pointed out that the Long Island Lighting Co. has adopted the policy of hiring men with less experience than journeymen. The new employees are thoroughly screened and investigated for accident history. Extensive and continued on-the-job training is then given to develop workmen with safe habits.

Mr. McCann discussed the training program of the Southern California Edison Co. Picked employees are given a 16-week job-training course at special training centers. Facilities for lineman training include a 15-acre lot with 120 poles from 20 to 75 feet in height. The program has effectively decreased lost-time accident frequency, with a 33 per cent reduction being realized during 1948 over 1947 and a 50 per cent reduction in 1950 over 1949.

The effectiveness of training programs was further emphasized by W. F. Brown, who outlined, with the aid of slides, a driver training course developed by the Consolidated Edison Co. "Defensive Driving" is the keystone of this program. Defensive driving practices are those that are basically correct and at the same time consistent with fairness, courtesy, and safety to all users of the streets and highways. Consolidated Edison considers safe and courteous driving beneficial, not only as an accident preventative but also as a creator of good will among motorists and pedestrians.

Round Table Discussion

A major portion of the meeting was devoted to a round table discussion conducted by R. P. Douglas. Many topics for consideration had been submitted by mail since the winter meeting of the committee and other questions were posed by members and guests as the program progressed. The discussion was of particular value, since opportunity was afforded for practice procedures and experiences to be exchanged with Far Western companies not always present at the eastern gatherings. The effectiveness of the committee meeting as an exchange medium for accident prevention information among the companies of the industry was a contributing factor to the outstanding success of the conference.

An interesting feature of the meeting was a safety exhibit that had been prepared in the meeting room by G. J. Ruoff. The display included posters, safety equipment, safety slogans, and accident prevention suggestions.

Electrical Equipment Committee Meeting

J. H. Foote, *Chairman*

THE Electrical Equipment Committee, with approximately 40 members and guests present, held its 54th meeting at the Biltmore Hotel, Los Angeles, Calif., on May 28 and 29. On May 25, and again on May 31, the Southern California Edison Co. conducted inspection tours of its Big Creek hydroelectric project, about 300 miles north of Los Angeles, for committee members. During their stay in Los Angeles, some of the members also made inspection trips to the Redondo Beach Steam Plant and Mesa and other substations of the Southern California Edison Co.

On June 2 committee members were guests of the Pacific Gas and Electric Co. on an inspection tour of the new Contra Costa Steam Plant, Moraga Substation, and Mission Substation.

On May 28 the Electric Club of Los Angeles played luncheon host to the committee. J. H. Foote, chairman, spoke on the "Economic Problems Facing Power Supply Engineers," in which he pointed out that during the past 15

years great progress in the technical aspects of the production and distribution of electricity has been made. However, he said, continued improvement is becoming increasingly difficult. This, together with rising costs of materials and labor, poses a real problem to power supply engineers, who have as an objective the supplying of customers with their increasing demands at the lowest feasible cost. Mr. Foote gave three factors that seem to offer help in solving this economic problem:

(1) The careful balancing of technical features of design to develop excellent performance in all components of the electric system.
(2) Improvement in design to increase reliability and reduce the time required for scheduled outages for repairs.
(3) Perfecting technical design to extend the useful life and to reduce the maintenance and replacement cost of all items of the system plant.

Closed Session

The first day of the meeting was devoted to the closed session discussion of apparatus troubles, system disturbances, and other appropriate subjects of interest primarily to committee members and electric utility company guests.

The Apparatus Trouble Report was presented by A. M. deBellis for the period August 15, 1950, to February 15, 1951. A total of 271 cases of trouble were reported, of which 156, or 58 per cent, were classed as of major interest. The average number of cases per month, 45, is higher than the average per month for the past 12 years. Replies were received from 100 per cent of those solicited, and Mr. deBellis thanked the members for their support of this activity. This was the first time that replies had been received from all of the companies. Of the troubles classified as major, those occurring most frequently were: reactors, 32; transformers (over 500 kva), 18; oil circuit breakers, 17; turbo-generators, 18; induction motors, 12.

Detailed reports of some major cases of troubles were presented by individual members. These were followed by a round table discussion of the causes and methods of prevention of the cases described.

R. W. Wilbraham reported on the work of the Joint Electrical Equipment and Prime Movers Committee on Sleeve Versus Ball Bearings. The committee is now preparing a log sheet which will be sent to all members in order that they may list troubles experienced with ball bearings and sleeve bearings.

H. T. Sutcliffe reported on the method of neutral grounding of generators used by the Pacific Gas and Electric Co. Since 1943 the company has been operating all synchronous machines with the neutral point grounded through the primary of a distribution transformer, the secondary of which is loaded with a suitable resistor.

A. M. deBellis gave a summary of the reports sent in by the members on experiences with rotor heating of synchronous machines due to unbalanced faults over the past 21 years. These reports were requested in order that the experience of the industry could be reviewed by the electric light and power representatives on the Subcommittee on Synchronous Machines of ASA, C-50.

The second day of the meeting, May 29, was devoted to the open session, at which papers and discussion centered around subjects of general interest to members, guests, manufacturers, and special representatives.

H. J. Klumb reported on the results of the questionnaire sent to members of the committee to survey present practices in insulation tests on generators rated 10 kv and above. While the practice in most cases follows well known procedure, there were variations in the application of procedures. Mr. Klumb pointed out that most companies depend upon insulation resistance measurements, either short-time tests or dielectric absorption tests, to gauge the condition of the insulation. Mr. Klumb also briefly summarized some of the progress reports on insulation testing which were presented at the 1951 New York AIEE meeting.

G. L. Hill described the Pacific Gas and Electric Co. method of d-c testing generators with test sets delivering up to 40,000 volts. The shape of the leakage current curve is used to detect trouble without actually breaking down the insulation. K. M. Stevens also reported on the use of the a-c withstand method of testing as used by the Southern California Edison Co.

R. M. Pennypacker advised the committee of the status of the inhibited oil program. He reported that there is a good supply of inhibitors and that manufacturers are working on the problems of inhibited oil in circuit breakers.

Pacific Gas and Electric Co.'s program of oil reclamation was described by H. T. Sutcliffe. He reported that they have not used inhibitors as yet except on an experimental basis. The specifications on reclaimed oil are almost as rigid as on new oil. L. Baskette also presented a paper with excellent color slides on Southern California Edison Co.'s experience with oil inhibitors, and W. E. Montgomery presented a paper entitled "System Protection Practices of Southern California Edison Company."

The scope and organization of the Utilization Division was reviewed by A. C. Gohlke. He pointed out that the use of arc furnaces in the steel industry was becoming increasingly popular due to their high thermal efficiency and that their use would affect system stability of those companies which serve such loads.

Apparatus and Design

W. F. Wetmore gave a progress report of the work being done by the Subcommittee on Synchronous Machinery ASA C-50. As a result of the survey and the fact that insufficient evidence has been presented to warrant a decrease in permissible length of time of fault current, the committee members felt that the short circuit requirement listed on the standard should remain unchanged.

A paper entitled "Standardized Substation Design," prepared by D. W. Taylor, was presented to the committee by E. H. Snyder.

R. R. Wisner read a prepared statement by H. Barber, New England Power Service Co., on "Standardization of Dimension of Outdoor Unit Substations." As far as can be determined, no attempt has been made to standardize the overall or individual cubical dimensions of the switchgear. The EEI, AEIC, NEMA Triple Joint Committee on Power Circuit Breakers is working on the problem, and they have pointed out to the manufacturers the desirability of being able to interchange transformers between unit substations.

A. M. deBellis presented a paper on "Transformer Noise," in which he pointed out the need for a revision in the NEMA standards.

The members noted with sorrow the death of F. S. Brown, a former member of the Committee, and unanimously passed a resolution to that effect to be included in the minutes of the meeting.

New Book a Unique Contribution to Public Utility Accounting

PUBLIC UTILITY ACCOUNTING
By J. R. Foster and B. S. Rodey, Jr.

FOR years the Edison Electric Institute has been receiving letters asking for a text book or correspondence course in public utility accounting, and until the publication last month of *Public Utility Accounting* by J. Rhoads Foster and Bernard S. Rodey, Jr., we have had to answer that we knew of no publication which was up to date in this field.

Comprehensive and Authoritative

We are happy to report, therefore, that this 690-page volume for the first time makes available a comprehensive, authoritative, and timely treatment of accounting methods, practices, and problems peculiar to electric and gas utilities under governmental regulation.

The authors have endeavored to make their presentation factual and to avoid writing briefs for a particular point of view on controversial questions. However, in a field where there are so many such questions, there will undoubtedly be some disagreement with the authors' conclusions or opinions, but it is this reviewer's opinion that occasions for such disagreement have been kept down to a minimum consistent with intellectual honesty on the part of the authors.

Authors a Formidable Team

The authors are well adapted in personality and experience to make complementary contribution to the work. Dr. Foster has a long background of academic study, training, and teaching, in addition to five years of service on the staff of the New Jersey Board of Public Utility Commissioners and several additional years as consultant to the Board. Dr. Rodey has devoted nearly all of his life to public utility work, the greater part of which has been as an employee or officer of the Consolidated Edison Co. of New York, Inc., or one of its predecessors. For the past ten years he has also been a lecturer in the School of Commerce, Accounts, and Finance of New York University. Dr. Rodey, who holds a doctor's degree from New York University, is not only an officer of one of the largest public utility corporations in the world but also a certified public accountant, a licensed professional engineer, and a member of the bar, all under the laws of New York State. Thus, their unique combination of theoretical training and practical experience make the authors a formidable team.

Public Utility Accounting, therefore, goes far beyond accounting techniques, although it does full justice to the highly practical aspects of record keeping in regulated utility industries. It deals broadly with the fundamental economic concepts underlying all accounting and the special economic and political points of view that particularly affect public utility accounting under the requirements of regulatory authority. Nevertheless, for the beginner who is more immediately interested in how to do a job than why he does it just that way, the book has a great deal to offer.

Impact of Regulatory Requirements

Emphasis is justly placed on the impact of regulatory requirements upon accounting methods and financial statements. The very first section of Chapter 1 is entitled "Characteristics of Regulated Enterprises," and Chapters 2 and 3 are devoted, respectively, to "Utility Regulation and Accounting" and "Uniform Systems of Accounts."

While the work draws most of its illustrations from and is frankly devoted to electric and gas utilities, much of it is applicable to other regulated utility enterprises. Transportation and communication utilities will find a great deal of the material in the book helpful to them, even though it does not deal directly with their problems.

The special importance of plant accounting to regulated utilities is clearly developed. The significance of plant costs in determining a "rate base," that is, a measure of permitted minimum earnings, is emphasized. This is one of the most important respects in which public utility accounting differs from that of unregulated enterprises. Until the growing detail of federal income tax laws and regulations forced more attention to plant accounts, many manufacturing industries not subject to any governmental regulations of earnings were not greatly concerned about their plant accounts and often carried them at over-all undifferentiated figures, which represented little more than an arbitrary rough balance to the capital stock and funded debt outstanding.

But in *Public Utility Accounting,* 16 chapters covering 170 pages treat of plant accounting problems, if we include in that term not only all kinds of plant cost records and their treatment but also the depreciation and amortization of plant costs. The three page section, "Original Cost Accounting and Rate Base," beginning on Page 320 of Chapter 14, is an exceptionally clear and concise statement of economic fact too often obscured in discussions of rate-making by regulatory authority.

Depreciation Concepts

The two chapters on "Depreciation and Amortization" properly emphasize the vital differences between the economic and accounting concepts of depreciation, differences which are at the bottom of most of the passionate debates which are so often aroused by this highly controversial subject. In light of the volumes of books, articles, and addresses that during a long period of years have dealt with the subject of depreciation and its proper recognition by accountants, it is strange that the confusion between depreciation (loss in value) as an economic fact that has to be reckoned with and depreciation as a conventional accounting technique for allocating plant costs to accounting periods should still be so great. It is an outstanding illustration of the importance of semantics and the danger of using the same word in different though related senses.

Net Income Defined

Another subject on which an enormous amount of confusion exists, especially in non-technical minds, is the necessary difference between net income, as defined in income tax laws and regulations, and what is reported to stockholders and investors as net income in published financial statements. The reason for such difference is clearly and concisely explained in Chapter 20 on "Taxes," in the section entitled "Taxable versus Accounted for Income."

The importance of financial statements in modern corporate accounting is recognized by devotion of two chapters to this field. Chapter 24, entitled "Reports and Statements," has sections covering "Reports to Management," "Reports to Stockholders, Employees, and Customers," "Reports to Governmental Agencies," and "Interpretation of Statements." Chapter 25 is devoted entirely to "Consolidations," with a 17-page section called "Preparation of Consolidated Balance Sheet Illustrated."

The reviewer feels that Messrs. Foster and Rodey have made an outstanding, and, at this date, unique contribution to the accountants of the electric and gas utility industries, which will also be of great value to many others not in that precise category.—H. C. H.

Copies of *Public Utility Accounting* may be obtained from Prentice-Hall, Inc., 70 Fifth Ave., New York, New York. Quantity prices are as follows:

1 — 4 copies	$10.00 each
5 — 24 copies	$10.00 each less 10%
25 — 49 copies	$10.00 each less 15%
50 — 99 copies	$10.00 each less 20%
100 — 249 copies	$10.00 each less 25%

Targets for Tomorrow

(*Continued from page* 251)

in Washington, and I don't think we would want to settle for less. But how about long-term goals? What shall we aim for in the electrical industry?

Last June, at General Electric's Utility Executives' Conference, I suggested a figure actually based on historical trends in the industry: One trillion kilowatthours annual output in 1970! This is no blue-sky forecast; it's an announcement. I'm as sure of that trillion as I am of my own name.

This industry will never fade away if this target is burned into the mind of every man here. An unshakable faith in our electrical future; a faith that defies cynics and lends us marching power; a faith in ourselves. Here is our cornerstone for the structure.

In an earlier day, a man named Moses spoke to the children of Israel, as they stood at the edge of the Promised Land. And these are the words he said: "I call heaven and earth this day to record against you—that I have set before you life and death, blessing and cursing. Therefore choose life, that thou and thy seed may live!"

Utility Financing

(*Continued from page* 214)

their management in corporations which would contribute their fair share to the tax revenues at all levels of government and would be regulated by the Federal Power Commission or appropriate state regulatory bodies. Then as opportunity presents itself the entire capitalization of these corporations should be sold by government to the nation's investors. In this manner our government would over the years constantly revolve the money it employs in the electric business, and instead of continually adding to the tax-exempt undertakings throughout the land, it would stabilize them at a figure —and possibly gradually reduce that figure.

It was heartening and encouraging to see you aggressively present your case to the Congress at the time the tax bill was in the making last fall. In addition to the tangible results of that effort there were intangible pluses in the favorable impression made on your stockholders. Keep closing your ranks and aggressively working together—and with other segments of industry—for the things that you believe are right.

You have a double responsibility: on the one hand you have this responsibility to prevent the gradual transfer of privately-owned businesses into the fold of government ownership and management. In this struggle I believe that the best combat area is the locality in which your companies operate and in which the tax-exempt, politically-owned property would operate. Here is the point of contact between the opposing forces. Appeasement or compromise with socialistically minded supporters of government in business is useless. New demands will soon appear.

On the other hand, as administrators of your companies, you must adequately serve the areas in which you operate; maintain your sound capitalizations; negotiate necessary rate increases with your rate making bodies; and promote the best possible relationships with your employees and your customers. In other words, you must keep strong and healthy so that you can grow with the country. As citizens, as well as members of your industry group, you have a very real responsibility and a very real opportunity.

New Publication

BY THE GRACE OF GOD THROUGH THE HANDS OF A FELLOW WORKER

What is the solution to the number one safety problem in the industry? The records of the EEI Edison Medal Committee of Judges contain the answer. This review of 250 cases of electric shock, involving employees restored to life through artificial respiration, reveals the basic causes of electric shock and points the way to their prevention.

A Report of the Accident Prevention Committee

EDISON ELECTRIC INSTITUTE

420 Lexington Avenue
New York 17, New York

Designing the Farmstead for Electrification

(*Continued from page* 226)

the findings are urgently needed to usher in this second phase of farm electrification.

Your field men and farm advisers need more than ever to be trained in farmstead planning as well as in the use of the particular equipment they sell. Now is your great opportunity. With some 85 per cent of the farms having service, you can now devote your full energies to the utilization of electric service.

In the words of the immortal Shakespeare: "There is a tide in the affairs of men which, taken at full, leads on to fortune. . ." I firmly believe the tide is running strong for the second phase of farm electrification. Let's ride it in the interest of more profitable farming, a better farm life, and good business for the utility.

CONVENTIONS AND MEETINGS

1951

JULY

2-4 American Society of Heating & Ventilating Engineers, Semi-Annual Meeting, Portland, Ore.

11 ECAP Management Group, Blackstone Hotel, Chicago, Ill.

12 PIP Steering Committee, Stevens Hotel, Chicago, Ill.

13 PIP East North Central Group, Detroit, Mich.

18 EEI Industrial Relations Committee, EEI Headquarters, 420 Lexington Avenue, New York, N. Y.

AUGUST

20-23 American Institute Electrical Engineers, Pacific General Meeting, Multnomah Hotel, Portland, Ore.

27-30 Illuminating Engineering Society, National Technical Conference, Hotel Shoreham, Washington, D. C.

SEPTEMBER

9-12 Rocky Mountain Electrical League Fall Convention, La Fonda Hotel, Santa Fe, N. M.

10-11 EEI Commercial Cooking Committee, EEI Headquarters, 420 Lexington Ave., New York, N. Y.

10-14 Joint ASME Industrial Instruments & Regulators Division, and Instrument Society of America, Exhibit and Conference, Houston, Texas.

13-15 International Association of Electrical Inspectors, Southwestern Section, Hotel Lafayette, Long Beach, Calif.

19 EEI Legal Committee, EEI Headquarters, 420 Lexington Ave., New York, N. Y.

19-21 International Association of Electrical Inspectors, Northwestern Section, Hotel Davenport, Spokane, Wash.

20-21 PIP Second Annual Workshop Conference, Edgewater Beach Hotel, Chicago, Ill.

20-21 Wisconsin Utilities Association, Accounting Section, Plankinton Hotel, Milwaukee, Wis.

21 Oklahoma Utilities Association, Gas Division, Biltmore Hotel, Oklahoma City, Okla.

21-22 Public Utilities Association of the Virginias, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

24-26 ASME Petroleum Mechanical Engineering Conference, Hotel Mayo, Tulsa, Okla.

25-27 International Association of Electrical Inspectors, Western Section, Hotel Fontenelle, Omaha, Neb.

25-28 ASME Fall Meeting, Hotel Radisson, Minneapolis, Minn.

OCTOBER

1-2 EEI Prime Movers Committee, Statler Hotel, Buffalo, N. Y.

1-2 Iowa Utilities Association, Management Conference, Fort Des Moines Hotel, Des Moines, Ia.

1-3 EEI Meter and Service Committee, Purdue University, Lafayette, Ind.

1-3 International Association of Electrical Inspectors, Eastern Section, Hotel Claridge, Atlantic City, N. J.

1-3 International Association of Electrical Inspectors, Eastern Section, Chalfonte-Haddon Hall, Atlantic City, N. J.

4-5 Southeastern Electric Exchange, Engineers and Operating Section Conference, John Marshall Hotel, Richmond, Va.

8-9 EEI Electrical Equipment Committee, New Ocean House, Swampscott, Mass.

8-12 39th National Safety Congress and Exposition of National Safety Council, Chicago, Ill.

9-10 National Farm Electrification Conference, Gibson Hotel, Cincinnati, Ohio.

9-10 National Farm Electrification Conference, Gibson Hotel, Cincinnati, Ohio.

10-11 Transmission and Distribution Committee, Sheraton Hotel, Rochester, N. Y.

10-12 Indiana Electric Association Annual Convention, French Lick Springs Hotel, French Lick, Ind.

11-12 ASME Fuels—AIME Coal Conference, Roanoke, Va.

15-17 International Association of Electrical Inspectors, Southern Section, Hotel John Marshall, Richmond, Va.

15-17 American Gas Association Annual Convention, Kiel Auditorium, St. Louis, Mo.

16-19 National Association of Railroad and Utilities Commissioners, Francis Marion Hotel, Charleston, S. C. (Executive Meeting, Oct. 15).

22 Oklahoma Utilities Association, Electric Light and Power Division, Western District, Lake Murray Lodge, Ardmore, Okla.

22-24 American Standards Association, 33rd Annual Meeting, Waldorf Astoria, New York, N. Y.

22-25 ASCE New York Convention, New York, N. Y.

22-26 AIEE Fall General Meeting, Hotel Cleveland, Cleveland, Ohio.

24 Oklahoma Utilities Association, Electric Light and Power Division, Eastern District, Aldridge Hotel, McAlester, Okla.

31-Nov. 2 Southeastern Electric Exchange Annual Sales Conference, Roosevelt Hotel, New Orleans, La.

NOVEMBER

12-15 NEMA, Haddon Hall, Atlantic City, N. J.

14-16 Wisconsin Utilities Association, Electric and Gas Sections, Sales and Engineering Divisions, Schroeder Hotel, Milwaukee, Wis.

25-30 ASME Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

29-30 Pacific Coast Electrical Association, 2nd Annual Hawaiian Conference, Royal Hawaiian Hotel, Honolulu, T. H.

DECEMBER

20 Electrical and Gas Association of N. Y., Inc., Christmas Luncheon, Grand Ballroom, Hotel Astor, New York, N. Y.

1952

MARCH

3-7 American Society of Civil Engineers, New Orleans Convention, New Orleans, La.

10-13 National Electrical Manufacturers Association, Edgewater Beach Hotel, Chicago, Ill.

27-28 Oklahoma Utilities Association Convention, Biltmore Hotel, Oklahoma City, Okla.

APRIL

8-10 Oklahoma Utilities Association, Southwestern Gas Measurement Short Course, North Campus, University of Oklahoma, Norman, Okla.

MAY

8-9 Public Utilities Advertising Association Annual Convention, Hotel Radisson, Minneapolis, Minn.

11-14 EEI Purchasing and Stores Committee, Roosevelt Hotel, New Orleans, La.

JUNE

16-20 American Society of Civil Engineers, Denver Convention, Denver, Colo.

SEPTEMBER

3-13 American Society of Civil Engineers, Centennial Celebration, Chicago, Ill.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

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(Terms Expiring 1954)

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EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(*Continued*)

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W. C. MULLENDORE.....Southern California Edison Co., Los Angeles, Cal.

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Application of Accounting Principles, H. H. SCAFF.....Ebasco Services Inc., New York, N. Y.

Coordinator of Customer Activities, J. C. FARIS.....Union Electric Co. of Missouri, St. Louis, Mo.

Customer Accounting, M. J. WALSH.....Consolidated Edison Co. of New York, Inc., New York, N. Y.

Customer Collections, F. J. FLOM.....The Detroit Edison Co., Detroit, Mich.

Customer Relations, E. G. PRENTICE.....NEGEA Service Corp., Cambridge, Mass.

Depreciation Accounting, G. T. LOGAN.....Philadelphia Electric Co., Philadelphia, Pa.

General Accounting, H. W. BOOZER.....Georgia Power Co., Atlanta, Ga.

Internal Auditing, W. T. HAMILTON.....The Cleveland Electric Illuminating Co., Cleveland, Ohio

Plant Accounting and Records, E. D. KING.....The Detroit Edison Co., Detroit, Mich.

Taxation Accounting, L. F. SCHOLLEY.....The Cleveland Electric Illuminating Co., Cleveland, Ohio

COMMERCIAL

Commercial Division General, M. E. SKINNER.....Union Electric Co. of Missouri, St. Louis, Mo.

Sales Personnel and Training, R. J. MILLER.....The Cleveland Electric Illuminating Co., Cleveland, Ohio

Wiring and Specifications, R. W. WILSON.....Kentucky Utilities Co., Inc., Lexington, Ky.

Commercial Sales Section, C. D. HOLLISTER.....Niagara Mohawk Power Corp., Albany, N. Y.

Farm Section, R. T. JONES.....Pennsylvania Power and Light Co., Allentown, Pa.

Industrial Power and Heating Section, MAXWELL COLE.....Philadelphia Electric Co., Philadelphia, Pa.

Residential Section, E. O. GEORGE.....The Detroit Edison Co., Detroit, Mich.

ENGINEERING

Engineering Division General, H. P. SEELYE.....The Detroit Edison Co., Detroit, Mich.

Electrical Equipment, J. H. FOOTE.....Commonwealth Services, Inc., Jackson, Mich.

Hydraulic Power, HIBBERT HILL.....Northern States Power Co., Minneapolis, Minn.

Meter and Service, F. A. REDDING.....Southern California Edison Co., Alhambra, Cal.

Prime Movers, G. V. WILLIAMSON.....Union Electric Co. of Missouri, St. Louis, Mo.

Transmission and Distribution, J. A. PULSFORD.....Public Service Electric and Gas Co., Newark, N. J.

GENERAL

Accident Prevention, W. F. BROWN.....Consolidated Edison Co. of New York, Inc., New York, N. Y.

Codes and Standards, D. C. LUCE.....Public Service Electric and Gas Co., Newark, N. J.

Electric Power Survey, W. L. CISLER.....The Detroit Edison Co., Detroit, Mich.

Industrial Relations, F. E. VERDIN.....The Cleveland Electric Illuminating Co., Cleveland, Ohio

Insurance, I. M. CARPENTER.....Ebasco Services Inc., New York, N. Y.

Legal, RALPH M. BESSE.....The Cleveland Electric Illuminating Co., Cleveland, Ohio

Membership, E. S. THOMPSON.....The West Penn Electric Co., Inc., New York, N. Y.

Prize Awards, G. E. WHITWELL.....Philadelphia Electric Co., Philadelphia, Pa.

Purchasing and Stores, R. L. LEACH.....Georgia Power Co., Atlanta, Ga.

Rate Research, HARRY I. MILLER.....Wisconsin Public Service Corp., Oshkosh, Wis.

Rural and Urban Development, J. FRANK GASKILL.....Philadelphia Electric Co., Philadelphia, Pa.

Statistical, ELDRED H. SCOTT.....The Detroit Edison Co., Detroit, Mich.

Transportation, S. G. PAGE.....Duquesne Light Co., Pittsburgh, Pa.

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